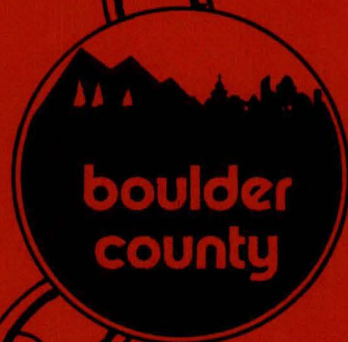
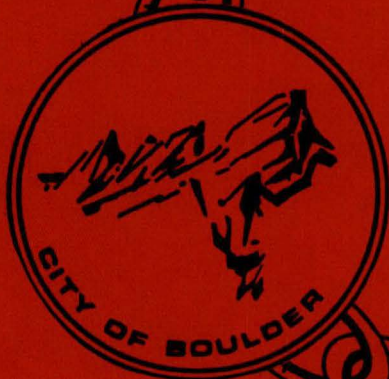




THE
"WE"
COMMITMENT



The Front Range Vegetative Management
Pilot Project:

The "We" Commitment

COOPERATIVE FOREST MANAGEMENT
IN COLORADO

THE FRONT RANGE VEGETATIVE MANAGEMENT PILOT PROJECT:
THE "WE" COMMITMENT

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EXPERIMENT STATION

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INTRODUCTION

In June of 1977, "we" began a cooperative forest management project near Boulder, Colorado, that was to be known as the Front Range Vegetative Management Pilot Project. The "we" is the many landowners, citizens, and representatives from the City and County of Boulder and many professional land managers representing state and federal agencies. Since the project's inception, we have worked together toward the mutual goal of demonstrating that mountain pine beetle control and vegetative management methods are economically feasible and socially acceptable. ^{1/}

Early in the organization of the pilot project, someone asked, "How would you sum up all of the aims of this project into one collective goal statement?" The answer we gave was, "We want to demonstrate how landowners and managers of public lands can most effectively work together to bring about a managed forest and its companion social and economic benefits."

Specifically, this meant that local landowners, community officials, and managers of public lands were about to undertake the planning and associated work to manage 34,500 acres of forest lands. Not that these lands had never been managed before, but rather, we intended that the management of these lands would be based on a common set of broad goals with the intention of "improving forest conditions."

What exactly did "improving forest conditions" mean? At the time we started the project, it was apparent to even the casual observer that past practices had resulted in an unhealthy forest. Diminished resistance to disease and insects, increased fuel buildup, and fire hazards threatened the quality of the forest environment. This condition, aggravated each year by a mountain pine beetle epidemic, needed a community initiative to deal with the beetle and its effects. The pilot project attempted to meet that need.

Since completion of the pilot project, we have initiated several similar efforts.

From a perspective developed by cooperative involvement and two years of on-the-ground forest management work, we think it is worthwhile to document our experiences and accomplishments for the benefit of others interested in a similar undertaking. To this end, we dedicate the following report.

^{1/} Environmental Analysis; Front Range Vegetative Management Pilot Project, Section IF8, page 8. Excerpt contained in Appendix Exhibit 1.

HISTORY AND DEVELOPMENT OF THE PILOT PROJECT

"When timber stands are brought under management, it becomes possible so to regulate conditions as to make forests less vulnerable to insect attack.

"...A selective cutting to...release the stand from stagnation, and to give the more thrifty dominant trees first chance for such moisture as may be available is the most obvious solution.

"...unless the work is continued...the reductions (in bark beetle damage) brought about by control efforts are difficult to maintain...The only permanent protection is through the management of forest properties..."

F. P. Keen, 1938^{1/}

The Colorado Front Range is that portion of the Rocky Mountains east of the Continental Divide in the northern half of the state and the eastern slope of the Sangre de Cristo Range in Southern Colorado.

Since the early 1900's, the area has had repeated mountain pine beetle, Dendroctonus ponderosae Hopk., (MPB) epidemics. In the past two decades, beetle population has increased to a point where, in 1975-77, an estimated 1.5 million trees were infested annually. Reasons for MPB epidemics are not completely understood but man's activities have contributed to conditions that resulted in the present epidemic.

In 1972, after several years of random treatment of infested trees on scattered nonfederal lands, the Colorado State Forest Service (CSFS) initiated a policy of direct mountain pine beetle control on only relatively large blocks of land. It was applied where landowner and agency participation plus geographical and biological circumstances offered reasonable opportunity for success. This policy evolved into the present state program of Designated Control Areas (DCA).

Even in these early stages, the program required commitment from all the people and agencies involved in each DCA; the "we" commitment to do something was born.

Insect control specialists have long been frustrated with direct control, recognizing that such treatments usually are only aimed at symptoms (outbreaks) and do little to alleviate the cause of problems. Specifically, mountain pine beetle research has been examining and developing ideas on the possible causes of such outbreaks. In 1975, a paper written jointly by research and pest control specialists of the USDA Forest Service (FS) and CSFS^{2/} described some causes of the MPB problem and outlined a

^{1/} Keen, F.P., Insect Enemies of Western Forests, (USDA Misc. pub. 273, 1938), pp. 172 and 196.

^{2/} Robert E. Stevens, et. al., Mountain Pine Beetle in Front Range Ponderosa Pine: What It's Doing and How to Control It, (USDA) Forest Service Gen. Tech. Rpt. RM-7, 1975).

program integrating direct control with forest management methods designed to achieve long-term protection from recurring MPB outbreaks. If direct control was only "buying time" for the landowner/manager, management techniques now allow investment of that time to ensure attainment of landowner/manager goals of more long-lasting protection.

Mountain pine beetle problems in the ponderosa pine forests of the Front Range make it desirable that land management agencies and private landowners together develop management directions to solve the problems of a sick forest. One-third of the Front Range is privately owned and 40 percent of that privately-owned forested land is occupied by residences and commercial establishments. This land is often intermingled with public lands administered by various federal agencies, state, and/or local governments.

The varied ownership and management philosophies in the area necessarily led to a broad spectrum of management goals. However, devastation by mountain pine beetles gradually forced convergence of these varied objectives to a common goal -- to stop the mountain pine beetle epidemic. While professional land managers were convincing landowners to accept the necessary management principles, implementation of the control techniques was blocked by two factors. The generally small size of individual ownerships made for unsound biologic protection. It was apparent that managed stands surrounded by unchecked beetle infestations, were poor investments. In addition, the combination of small ownerships, low tree volume, poor sites, and little local wood products industry made forest management a nonpaying proposition. We knew what the forest needed but did not know how to get it done.

During 1976, the USDA Forest Service conducted a study of insect problems of western National Forests. The results were published by the Washington Office in March 1977, as the Western Forest Insect Issues Study. Included in that report was a recommendation to establish "pilot projects to evaluate stand manipulation practices."

Concurrently FS Region 2 and the Colorado State Forest Service were formulating a joint proposal, completed in April 1977, to put Front Range ponderosa pine forests under management. The original Front Range Vegetative Management Project was expected, through intensive management techniques consistent with landowner objectives, to create a healthy forest which among other things would prevent MPB epidemics. Other goals were to reduce wildfire hazard through fuels treatment and enhance aesthetic resources and wildlife habitats. This proposal, with an estimated budget of \$45 million over a five-year period, was presented to the Chief of the FS by the Regional Forester. The Chief endorsed the concept and suggested a relatively small, short-term pilot project to test it.

The challenge of a test project was accepted by the CSFS and the FS and by mid-May, it was agreed to proceed with the plans for a project in Boulder County encompassing between 30,000 and 40,000 acres of mixed land ownership.

The pilot project area was selected because:

- It contained typical Front Range ponderosa pine forest type with intermixed landownership and 16 platted subdivisions.
- Its proximity to Front Range metropolitan population centers ensured high visibility for demonstration purposes.
- There was high recreation use in the area.
- Several landowners associations, plus the cities of Denver and Boulder and Boulder County, had expressed interest in forest management practices to control beetles and reduce the threat of catastrophic fire.
- The area contained several established Designated Control Areas set up by the CSFS to combat mountain pine beetle.
- Some land use information had been compiled for the area.
- Fuel densities and fire hazard had built to a critical degree, thus requiring management to avoid a catastrophic fire.
- A forest management plan had been completed by the CSFS for 6,000 acres of private land.
- There was demonstrated cooperation between the private landowners, City of Boulder, County, Bureau of Land Management, CSFS, and FS.

The Pilot Project proposal was presented personally to the Washington Office of the Forest Service by FS and CSFS officials and Boulder County, demonstrating the broad support for the project at the local level.

Following the decision to proceed, a more specific budget proposal, including an environmental assessment and economic analysis, was submitted. Funding was approved, to begin October 1, 1977, and implementation plans were begun. We were underway.

PLANNING AND ORGANIZATION

In June of 1977, a team of forest resource specialists was formed to develop an environmental assessment for the candidate pilot project area. This analysis was to establish goals, alternatives, and selection criteria that would provide appropriate management direction for planning and subsequent management treatments.

Following completion of the environmental assessment, the next task was to develop an interagency organization (see Appendix Exhibit 3 for initial organizational process chart) which would formulate the process to be used in planning management treatments, work execution, and evaluation programs. This group included a County Forester, County Commissioner, State District Forester, Forest Service District Ranger, Bureau of Land Management representative, Forest Service Research Station representative, a city Forester, and many other participants. Following two meetings, the participants had agreed on the following direction that would guide planning, execution, and evaluation.

1. An interdisciplinary planning team composed of landscape architects, wildlife biologists, entomologists, and foresters from several agencies would be established to develop operating plans specific to the areas being treated. The development of these operating plans and management would be guided by management direction contained in the environmental assessment. The planning team would include participants from Boulder County, City of Boulder, the Colorado State Forest Service, and the Forest Service.
2. The pilot project would have three major phases as follows:
 - A. Planning - The interagency planning team discussed in item 1 would be responsible for completion of operating plans.
 - B. Execution - The Colorado State Forester's Office would coordinate and manage on-the-ground application of prescriptions (operating plans) to public and private lands.
 - C. Evaluation - The Rocky Mountain Forest and Range Experiment Station, the FS Regional Office, and the Arapaho and Roosevelt National Forests would develop a monitoring and evaluation plan that would guide evaluation of the overall project. The Rocky Mountain Forest and Range Experiment Station would coordinate the development of this plan.
3. A cooperative agreement would be drafted that would establish the responsibility of the Colorado State Forester for work execution on federal lands. This agreement would further specify the process for reimbursing the State Forester for the work accomplished on National Forest lands.

4. The overall administration of this project would be charged to a Board of Directors to be made up of a Boulder County Commissioner, the State Forester for Colorado, and the Forest Supervisor of the Arapaho and Roosevelt National Forests. Accordingly, the Board of Directors would approve the operating plans and provide direction concerning organization, employment, and public information. The State Boulder District Forester would be designated overall project coordinator.
5. A public information specialist would be employed cooperatively and placed under the direction of the District State Forester.
6. Work would proceed immediately to designate and treat beetle-infested trees throughout the entire project area. Other management prescriptions could be applied according to the approved operating plans.
7. The State Forester's Office, City and County of Boulder, and the Forest Service would make maximum use of the Federal Human Resource Programs (e.g., Comprehensive Employment and Training Act (CETA) employees, Young Adult Conservation Corps, Youth Conservation Corps, college work study, etc.) to conduct the pilot project.
8. The State District Forester would continue to enlist the participation of the private landowners within the project area.

We learned as work progressed. A strong private landowner initiative to rid the forest of the mountain pine beetle epidemic and to reduce fire hazards already existed. A similar concern of public land managers bonded the public and private efforts into one cause, "Stop the mountain pine beetle." Always apparent were the many opportunities and benefits resulting from the partnership in forest management.

Perhaps more importantly, the combined effort helped us develop a new sensitivity to the "cause and effect" of the beetle. All of us began to take stock of what we knew about prevention programs. Although the initial thrust was one of suppressing a current attack, we knew that our attention and effort would soon be focused on applying relatively new practices in integrated pest management. The basic question became, "What forest condition best prevents mountain pine beetle epidemics?" The answer we felt would lie in applying the research-developed technology.

The pilot project reestablished that a successful project hinges upon planning and management prescriptions that "fit the ground." This kind of project makes the participants keenly aware of the need for proper resource management planning. We had to look at the land, its character, its attributes and ask, "What do we want from our land? Of what is it capable? In the next few years? In the next 100 years?" To answer these questions, a team was organized to develop management prescriptions (operating plans). A sample of the most current operating plans and standards is contained in Appendix Exhibit 4.

IMPLEMENTATION

In two years the Front Range Vegetative Management Pilot Project accomplished more forest management than had been completed in Boulder County during the previous 20 years. Our original project timetable scheduled all work for completion in one year. The land managers felt pressured by the expectations to complete the project in a short time and by peer pressure to set a good example. Few people, however, knew entirely what the example should be.

Management personnel of the involved agencies made the high priority of the pilot project very clear. Money, equipment, and people were diverted to the Front Range Project. The instructions were, "do what you have to do." What could be done then was limited only by law, imagination, and creativity. Agencies' past procedures were not viewed as constraints.

Building the "we" commitment was a subtle but ever present part of the implementation. People "outside" the project found themselves being brought in through project requests for recommendations on how to do something. On monthly field tours to critique work in progress, "outside" people contributed and suddenly found themselves a part of the "we." Efforts were made to build involvement rather than streamline the project organization.

During the first six months or so, success was only evident to the overly optimistic. Overlap of activities was the rule. In many cases, operating plans for a specific site were being written at the same time adjacent landowners were being contacted. Approval of public land prescriptions was obtained while contracts were made with private landowners. Crews were hired and trained before much of the crews' work was planned or approved.

The following sections describe how various facets of the project were implemented.

Information and Education

Public Information Officer - One of the first steps in getting the project underway was hiring a public information officer to be responsible for public information and involvement. Boulder County administered the advertisement and hiring for the position. The County Forester, State District Forester, FS Boulder District Ranger, and County Public Information Officer helped select the individual. The position was funded through the County, and under the direct supervision of the project coordinator. The Public Information Officer (PIO) position was vital for public understanding and support of the project.

At first, the PIO had to let people know the project existed. A core of about 100 supportive landowners was already involved. But, about 2,400 other local landowners and the general public had to be informed. Explanations were of what the project would mean, who could expect benefits from it, what those benefits were, and who to contact for further information.

Mailings to all landowners within the project area were among the activities the PIO arranged and assisted with. Many landowners were finally tracked down out of state or even out of the country. An example of the initial mailing and return postcard is included in Appendix Exhibit 5. The mailing list for the newsletter was national in scope, and included all Colorado state and federal legislators. Other PIO activities included news media contacts, private meetings with landowners, editorials, magazine articles, radio and TV spots, interagency "round table" meetings, project supervisors' breakfasts, county commissioner progress reports, media interviews of project personnel, monthly newsletters, tours and more tours, signs, brochures, before and after photographs of project sites, and a final report.

Citizen Organizations - We enlisted the support of citizen organizations such as volunteer fire departments, pine beetle control committees and homeowner associations. Such organizations were key contacts with landowners. People from such groups were experienced in organizing local efforts. Their regular meetings were a forum for gaining support for the pilot project. Their influence and creditability in sponsoring "special landowner" meetings to disseminate information or to answer questions was vital. Pilot project mailings and newsletters were included in mailings made by the citizen organizations.

Personal Contacts - Every landowner on whose land work was done had to be personally contacted. It usually involved phone calls (sometimes to other states or overseas) and a follow-up letter. Sometimes persons with power of attorney were the contact rather than the landowner. Support for the project by influential citizens often convinced another person that thinning or beetle control or fuels abatement work was in everyone's best interest.

A common procedure to gain support from a landowner was:

1. Make initial mailing.
2. Talk with neighbor or influential citizen or group leader to gain outside support.
3. Meet with the landowner on his land to describe our proposal for landowner's land. (A less effective but occasionally necessary alternative was a phone call or letter.)
4. Send a follow-up letter with agreement (CFRP-1, see Exhibit 6) enclosed ready for signing.
5. Place follow-up phone call to ensure agreement signed and understood.
6. Make progress report by mail or phone.
7. Submit bill and CFRP-1 for signature that agreements were fulfilled and obligations completed.

Public Presentations - Opportunities to discuss the project were welcome. Local chambers of commerce, the Lions Club, People United to Reclaim the Environment, the Sierra Club, the Colorado Wilderness Club, the Wildlife Society, the Boulder Parks and Open Space Advisory Council, the Audubon Society, Boulder Realtors, and others received a presentation. The PIO

made a slide tape program, professionally narrated with background music. Professional films on forest management and mountain pine beetle were also used. It was never assumed that the entire local public knew about our project because, even after months of media exposure, many people were still uninformed. Telling the project's story was a constant requirement in order to maintain support and understanding.

Local Liaison Program - To keep track of information about the project that was being informally distributed through the local "grape vine," some of the local landowners were hired on a part time basis as liaisons. Between one and three liaisons were employed for each of the four Front Range Project management units. Liaisons performed a variety of critical tasks such as phone contacts, finding out who owned a certain piece of land, and who knew that landowner, etc. They provided feedback on who was dissatisfied or satisfied with some aspect of the project. They arranged meetings and scheduled volunteer workers.

This interesting approach produced surprising results. On one occasion, one of the liaisons kept a unit Forester informed of a very irate landowner's concern. The landowner was not satisfied because thinning of healthy trees was taking place while some beetle-infested trees in the area had not yet been treated. When the Forester finally met this particular citizen, he turned out to be the liaison's husband! Liaisons were directly supervised by the unit forester.

Landowners were concerned about what was being done on public lands. In fact, in most areas, public land was the landowner's "back yard". Foresters had to listen to concerns. Changes on prescriptions were made to respond to landowner and public interests. Compromise on a particular issue such as the density of a thinned stand was not unusual. The result was a managed stand that addressed interests other than present timber value. Feedback and response to public input ensured adherence to the pilot project's goals of improving wildlife habitat, scenic quality, and watershed conditions.

Personnel Recruitment

Management Personnel - Land management personnel from the Forest Service were transferred to the pilot project to handle manpower programs. The Front Range Project area was divided into two divisions, North and South, and four management units, (Flagstaff, Magnolia, Nederland, and Sugarloaf) two for each division. Journeyman land managers were transferred in by CSFS to oversee division operations. Beginning foresters were hired to fill the unit forester slots.

A significant improvement in personnel management would have been to place more experienced people at the unit forester level. Unit foresters were expected to recommend prescriptions, hire and train crews, supervise personnel, set up and mark sales and thinnings, contact landowners, contract cutters, maintain records, process billings, manage a budget, keep equipment operating, handle complaints, and be available for the media. It is usually hard enough for a new forester to apply classroom

learning when trying to implement silviculture prescriptions without such added responsibilities. By the end of nine months, the first four unit foresters had resigned.

The burden of responsibility fell to experienced supervisors to hold activities together, especially when the total number of employees exceeded 400, (162, USFS; 41, Boulder County, 13, BLM; 171, CSFS; 24, City) in June 1978. The key point here was the use of experienced personnel. Without their management expertise, success and continuity would have been impossible.

Work Force Recruitment - Prior to the Front Range Project, very few forest management contractors worked in Boulder County, so inexperienced crews had to be hired to get work done. Any person with a request for employment on file was hired. Advertisements were run in newspapers. At one point, the market of available workers was exhausted. Salaries started low and poor performers were weeded out after they were hired. People with supervisory skills advanced quickly to more responsible positions. Personnel problems increased as the number of crew members overbalanced the number of experienced supervisors. Seven was the optimum crew size for one supervisor.

The pilot project was assigned top priority for the Public Service Employment (PSE) under the Comprehensive Employment and Training Act (CETA) by Boulder County. The State Forest Service, County Forester, City of Boulder, and Forest Service filled 106 PSE positions. Turnover of these personnel was rapid and positions were often vacant until qualified individuals could be located.

The Young Adult Conservation Corps (YACC), a program for youth between ages of 16 and 24, was made available for the pilot project through the U.S. Department of Labor. It was administered locally by the Forest Service. About 135 man-years of employment were secured at minimum wage. Individuals received useful skills training, an appreciation of hard work, and outdoor work experience.

After one year into the project, it became obvious that a private contracting force was not developing fast enough to handle needed work. Personnel problems were also increasing and more and more of the supervisors' time was involved in handling crew problems. To solve this, layoffs of hourly crew people were implemented at the same time contract offers were extended to former crew people. The local Chamber of Commerce and Small Business Administration assisted in training prospective contractors on how to manage simple business affairs. Eventually, a contracting force of between 35 and 50 firms was working in addition to the YACC and PSE crews, which were maintained at full strength throughout the project. Additional temporary crew people were hired as needed.

Commercial loggers were recruited for the area. Although timber quality in the area was relatively poor, the demand for dead timber for house logs and availability of some large tracts of beetle-killed timber enabled us to place four or five reputable loggers under contract to commercially log certain areas.

Close proximity to the Front Range metropolitan centers creates a high demand for firewood. Firewood gathering was used as another means of removing unwanted forest fuels. Firewood permits were sold to commercial operations for city, county, and private land and areas of public land were opened for free use firewood gathering.

Volunteer groups and individuals were used anytime they were available. Tree planting was the most popular volunteer project. The most successful tree plantings were done by a local volunteer fire department, which was placed under contract and paid a nominal amount for their services. The department upgraded its radio equipment with the proceeds.

Putting It All Together

All involved agencies functioned as separate agencies by maintaining their identity and managing their personnel, but all had common goals.

Examples best illustrate how the whole project pulled together in this way.

Example I - Magnolia: In an area where nearly 100 mining claims are interspersed with National Forest lands, Colorado State Forest Service unit foresters wrote prescriptions utilizing Forest Service guidelines. Prescriptions for National Forest lands were approved by the Boulder District Ranger of the Forest Service. The same prescriptions were proposed to 22 separate landowners and partnerships. Separate contracts were made with each landowner or partnership by the Colorado State Forest Service. CSFS subcontracted with six different contractors to conduct pine beetle control, fuel reduction, wildlife habitat improvement work, and non-commercial thinning in the area. Forest Service personnel provided help on skid trail and stream crossing locations. Contract boundaries disregarded property lines, which facilitated set-up and administration of the work because legal boundary surveys became unnecessary.

Example II - Sugarloaf: In an area of mountain home development, interspersed with National Forest and BLM lands, the Forest Service wrote up prescriptions. USFS, BLM, and CSFS personnel conducted the marking. YACC and PSE crews cut and stacked beetle-infested trees on Forest Service lands. Boulder County PSE crews and private contractors, under contract with the Colorado State Forest Service, cut beetle-infested trees on BLM lands. Private landowners and CSFS crews cut infested trees on private lands. State crews chemically treated infested trees. The Colorado State Forest Service arranged and conducted timber stand improvement and wildlife habitat activities on National Forest and private lands using private contractors. CSFS also managed free firewood gathering from National Forest lands and sold firewood from private lands as partial payment for work done on private lands.

Example III - Pee Wink: A commercial logger under contract with the Colorado State Forest Service harvested dead timber for house logs from National Forest and private lands. YACC and Boulder County crews thinned the area after logging. CSFS managed free firewood gathering from National Forest lands. A volunteer fire department under contract with CSFS replanted portions of the area with seedling trees. A group of scouts under an Eagle Scout program reseeded other National Forest lands with ponderosa pine and planted seedlings on BLM lands. Piled slash was burned by YACC, PSE, and CSFS hourly crews supervised by federal and state forestry personnel.

Example IV - Flagstaff: Prescriptions were written by City and CSFS personnel for City of Boulder land; CSFS foresters marked trees for cutting. The Colorado State Forest Service commercially sold timber from a portion and contracted with Boulder County forestry division to noncommercially thin the entire area. CSFS sold fuelwood permits for fuels reduction. Volunteers replanted areas with seedling trees.

Example V - Vehicles and communications: Acquiring vehicles to transport the sudden, tremendous increase in manpower necessary to get this program off the ground was a major consideration. A fleet of new vehicles was not available or affordable. Two 12-passenger vans were rented from the Colorado State University motor pool as a temporary measure. Because part of the project was wildfire hazard reduction, 35 excess 5/4-ton military 4x4 jeeps were acquired from the U.S. Department of Defense through the FS. These became the backbone of the project's transportation system. The CSFS shop checked these over mechanically, painted them, and shipped them to the front lines. At the same time, surplus 3/4-ton military trailers were acquired and converted into equipment trailers. In addition, CSFS acquired three 24-passenger buses from the California State Forest Service. Even this was not enough, so pickups were rented from a leasing company.

To keep the vehicle fleet running, a full time mechanic was hired. He spent a good deal of time making field repairs and was an invaluable member of the pilot project team.

Communications were also important. Investment in a new system solely for a one-year pilot project was not possible. An existing local government/State Forest Service system was inadequate both in terms of number of units and capabilities. As a supplement, six surplus mobile units were obtained from the Forest Service. A base station on the FS frequency was installed in the CSFS district office, and the USFS loaned the project packset radios (county sheriff frequency mobiles and one packset were already being used by CSFS). This was not an ideal system but it proved workable. It was very valuable to have State and FS people communicating on the same radio system.

Equipment breakdowns made working with surplus and used equipment frustrating. However, given the resources available, the project staff made do.

Example VI - Field offices: Most field activities in the pilot project were handled from field offices. These were centrally located in each of the four units. This concept improved the efficiency of the operation. Foresters in charge of the units and all crews were required to report to these sites at starting time, thus saving several hours of travel time generally required to reach the worksites each day.

Unit offices made the pilot project operations visible to local landowners. Landowners would often stop and contact foresters about work to be done simply because it was convenient. Having the foresters close to the work facilitated contract administration and crew supervision. The foresters could do a half day of office work and still have time to look at field work in progress. Another benefit was that the proximity of the offices to the work areas allowed use of local telephone exchanges for contacts with the landowners and project staff. This saved money because of the volume of telephone use in the project was heavy.

Stationing the project staff near the work site gave landowners confidence that the project work was closely supervised and made them more willing to agree to do forest management work. The "field office" concept was a key ingredient to an efficient pilot project.

Example VII - Demonstration Area: An interdisciplinary team made up of experienced Forest Service personnel wrote detailed prescriptions for a demonstration area. CSFS foresters marked the area. State crews thinned the area on National Forest and adjacent private land.

The above examples illustrate that the key to the pilot project's success was that we worked together. Each agency functioned as an agency, each received recognition, yet we all had common goals.

RESULTS

The approach during the entire project was directed at problem solving. A "can do" attitude dominated. There were constraints and difficulties but a way to get the job done was determined and implemented.

Total forest management was economically implemented and socially accepted. Numerous landowners with varying objectives came together to achieve results in areas of wildlife, mountain pine beetle, recreation, fire hazard, property values, timber stand improvement, and other individually selected prescriptions.

The following accomplishment summary is an important measure of project success.

<u>Activity*</u>	<u>Accomplishment</u>	<u>Cost</u>
YACC	135 Man Years	\$ 810,000
CETA	106 Positions	882,000
Thinning	9,039 Acres	755,787
Wildlife Habitat Improvement	8,013 Acres	115,684
Direct MPB Control	83,638 Trees	841,346
Reforestation	745 Acres	80,650
Fuels Management	14,520 Acres	862,855
Noxious Weed Control	29 Acres	2,900
Recreation	4,738 Acres	21,198
Fire Protection Contract (Initial Attack)	12,500 Acres	77,600
Administration/Planning/Forest Survey	13 Man Years 32,000 Acres	395,600
TOTAL		\$4,845,620

*A detailed activity description is located in Appendix Exhibit 7.

Other important accomplishments need recognition. These items have potential benefit beyond the pilot project.

Teamwork - The organizational concepts governing this project were new to everyone. Such a cooperative venture had never been tried. For different agencies with different responsibilities and procedures to work closely together seemed hard to envision. It took genuine commitment and a great deal of respect. As the project progressed, this diversity worked to our advantage by providing more ways to solve problems. Respect turned to trust as difficulties were mutually resolved. A better understanding and appreciation developed for each other's capabilities and limitations. Landscape architects, hydrologists, entomologists, pathologists, wildlife biologists, forest managers, and specialists from other disciplines interacted in developing the total forest management concept. Goals were achieved that could not have been accomplished independently. Cooperative forestry has a new meaning to those involved with the Front Range Project.

Private Landowner Involvement - Due to the mountain pine beetle infestation, landowners became aware that forest management was needed. A public information campaign was an early priority in the project. Work on federal lands demonstrated how forest management practices could enhance personal land and resource objectives. A new appreciation for a managed forest began to emerge. This was followed by participation, and as a result, 1,555 private landowners completed forest management practices on their lands.

Woods Work Force - At the project's beginning, there were only two active forestry contractors in Boulder County. Unemployment was a problem. At its peak, the Front Range Project provided 200 forestry jobs and had 55 operating contractors. Twenty-five skilled forestry contracts are still active in the area.

Cooperative Agreement/Negotiated State Contract - A vital factor to the success of the Front Range Project was demonstration work performed on land administered by the Forest Service. USFS manpower ceilings were overcome through a cooperative agreement with the Colorado State Forest Service. This allowed negotiated state contracts for implementing mutually developed forest management prescriptions on federal land. It was important to show immediate commitment and results in the area. The federal coop agreements also served to balance work schedules for state crews during the year. As private land work was initiated, federal land practices were being implemented, and vice versa.

Continued Program Efforts - As a direct result of the Front Range Project, the City of Boulder has contracted with Colorado State Forest Service to implement forest management practices on Boulder Mountain Parks and Open Space land. The USFS and CSFS have begun similar efforts in five additional areas. The BLM is also continuing its mountain pine beetle suppression activities on public lands in Boulder County.

Conclusion - The Front Range Project developed a momentum that is continuing along Colorado's Front Range. Implementation of forest management practices is better understood by the public as work is completed and change demonstrated. Public confidence in resource agencies and trust in management decisions is being strengthened. A new beginning has been achieved, and continued efforts are aimed at making Colorado's forests healthy and productive.

EPILOGUE

Forests are owned by people, managed by people, used by people, and perceived by people. Everybody wants something from "his/her" forest, but to the person charged with the management of public lands, it often seems everybody insists on something different. The Front Range Pilot Project showed that mountain pine beetle epidemics can be stopped, and more important, people with diverse backgrounds, responsibilities, and attitudes can be brought together into a common cause.

This report has covered highlights of how we did it. It has perhaps glossed over the difficulties. Indeed, there were problems and potential roadblocks. Success was a direct result of our commitment to overcome problems.

Were we successful in controlling mountain pine beetle? Long-term evaluation of beetle prevention of course cannot occur in one year. Short-term results are encouraging: in 1978, there were 90,565 infected trees in the pilot project area; in 1979, there were only 12,562 - a reduction of 86 percent.

For comparison, a similar area in Boulder County, outside of the project, where only direct control was applied without other intensive management activities had a reduction of only 59 percent.

Can it be done again in other places? We would answer with a strong yes. If agencies and private citizens plan together and commit themselves to work together, success is assured. In fact, the second phase for implementing Front Range Vegetation Management has started. Four Cooperative Forest Management Demonstration Areas (CMDA) are now into their second year and a fifth is in initial planning stages. These areas have three to five year time frames for completion. A sample of the prescriptions being used is located in Appendix Exhibit 4. Field operations are patterned after those developed in the pilot project. The key to their success will be, as it was in the original project, "The We Commitment."

Additional information on the Front Range Vegetative Management Pilot Project can be obtained from:

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Colorado State Forest Service
Lefthand Canyon
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APPENDIX

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APPENDIX EXHIBIT I

Excerpt from Environmental Analysis, Front Range Vegetative Management -
Pilot Project, IF8

F. Management Goals

1. Manage forest fire fuels to reduce wildfire to a level which will minimize annual losses and reduce suppression costs.
2. Provide healthy and vigorous trees, through silvicultural treatment, which are insect and disease resistant. Favor genetically superior, visually attractive and key wildlife trees.
3. Maintain or improve fish and wildlife habitat through forest management.
4. Improve, maintain or restore the scenic quality of the forested areas.
5. Provide a wide range of outdoor recreation opportunities on public lands.
6. Reduce mountain pine beetle populations to an endemic level.
7. Continue effective cooperation between County, State and Federal agencies and private landowners.
8. Demonstrate mountain pine beetle control and vegetative management methods which are economically feasible and socially acceptable.

G. Selection Criteria

The selected action will be based on an evaluation of the alternative which:

- Best satisfies the management goals.
- Best maximizes the output of goods and services.
- Best maximizes favorable effects and minimizes adverse effects.
- Results in economic efficiency of the investment.
- Results in the greatest social benefits.
- Best maintains or enhances long term productivity.
- Provides the fewest irreversible and irretrievable resource commitments.

APPENDIX EXHIBIT 2

Colorado Front Range Vegetative Management Budget Proposal

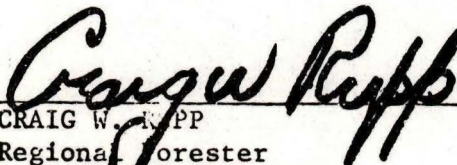
COLORADO
FRONT RANGE
VEGETATION MANAGEMENT
BUDGET PROPOSAL



THOMAS B. BORDEN
State Forester
Colorado State Forest Service
Colorado State University

4/21/77

(DATE)



CRAIG W. RUPP
Regional Forester
Rocky Mountain Region
Forest Service - USDA

5/2/77

(DATE)

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SUMMARY

(This section provides an overview of the entire presentation; details are included in the subsequent INTRODUCTION, CURRENT SITUATION, VEGETATION MANAGEMENT PROPOSAL, TABLES, and APPENDICES).

Extensive pine stands on the Colorado Front Range -- characterized by an over-crowded, decadent condition resulting from lack of vegetation management -- are suffering from a devastating mountain pine beetle epidemic. Continued build-up of forest fuels in these dense stands poses increasing threat of catastrophic wildfire. This condition has gradually developed since the early 1900's. There were far fewer mature trees then due to large forest fires that were common and intensive tree-cutting associated with settlement of the Front Range and the heyday of the mining era.

The Front Range is in the City of Denver's backyard, and that of Pueblo, Colorado Springs, Boulder, Fort Collins, and many smaller communities--a total population of more than two million. Forest recreation use is heavy throughout the Front Range, and large numbers of travelers from all parts of the nation each year use the several highways that cross the area. More than a third of the forested lands are privately-owned, and about 40% of these are occupied by permanent or recreation residences and commercial establishments. The Front Range is the most used forested area in Colorado.

Recreation, scenic, and wildlife values are of primary importance. The mountain pine beetle epidemic and resulting large areas of dead trees have an overall adverse impact, and the increasing wildfire threat is intolerable. Public concern about the pine beetle is tremendous; there is also growing concern about the fire problem, but this will probably not reach its height until a disaster occurs.

Efforts to combat the beetle epidemic have been largely confined to "direct control" -- cutting down and chemically treating or burning infested trees. Colorado State Forest Service has implemented an effective "designated control area" (DCA) concept on the Front Range whereby landowners cooperatively concentrate their control efforts in contiguous areas. Fuel treatment to reduce fire potential is receiving greater emphasis, with the Rocky Mountain Region allocating all of its proposed increases in funds for fuel treatment to the Front Range and Black Hills areas.

Alone, direct control of the pine beetle, while effective in some localized areas, is a losing battle in the long term. Prevention through silvicultural treatment or "getting stands under management," together with direct control, is the recommended means to minimize beetle activity. The rationale behind this approach is to stop the beetle and change stands from "susceptible condition" to a condition more resistant to insects and diseases.

The following figures summarize the Front Range ponderosa and lodgepole pine stand data used for developing this proposal:

Gross area (excluding National Forest Wilderness and designated roadless areas)	1,334,600 acres
Mountain pine beetle-killed (dead or dying; beyond treatment)	61,300 acres
Currently under management (thinned or harvested)	72,900 acres
Natural stand condition OK (not susceptible to pine beetle epidemic)	615,100 acres
Area threatened (needs treatment to prevent continued beetle epidemic)	585,300 acres

The proposal outlines the vegetation management and fuel treatment work needed, and the estimated funding required to meet the goal "to achieve a managed, attractive forest on the Front Range". Developed as a team effort by the Rocky Mountain Region and Colorado State Forest Service, it includes State, private, other non-federal public, and National Forest lands. The idea is to bring the various forest management functions and activities that apply to this land area together into a single coordinated approach. Through this comprehensive program, all activities will be more effective and total costs should be less than conducting programs separately. Proposed work and related funding in the proposal are supplemental to routine work and funding during the project period.

To reach this goal, objectives have been established -- to be achieved within five years -- to:

- ° Stop the current mountain pine beetle epidemic
- ° Create stand conditions which will enable prevention of future mountain pine beetle epidemics
- ° Accomplish fuel treatment in all stands where preventive treatment for mountain pine beetle is applied
- ° Modify stand treatments to create (or maintain) stand diversity for wildlife habitat and apply specific treatments for wildlife habitat improvement
- ° Maintain the scenic quality of the area treated

Primary treatment proposed within the threatened area consists of reducing stand density and a combination of methods of fuel treatment. Various modifications will be applied in the above treatments for wildlife and scenic purposes. Additional treatment for improvement of the wildlife food and cover ratio is also included.

A combination of management actions will be carried out to accomplish the project objectives and produce many desirable results.

<u>Management Actions</u>	<u>Unit</u>	<u>Quantity</u>
°Reduction of Stand Density	acres	322,200
°Direct Control, Mountain Pine Beetle		
- Cut and chemically treat	trees	957,000
°Fuel Treatment		
- Hand-pile and burn, or chip	acres	37,600
- Machine-pile and burn	acres	19,700
- Prescribed burning	acres	12,800
- Machine chopping	acres	7,600
- Fuel breaks	miles	350
°Wildlife Habitat Improvement		
- Create and seed wildlife openings	acres	17,000
- Build wildlife brush piles	acres	85,000
- Protect (sign) wildlife snags	acres	343,000

Application of the management actions as shown above will produce the following additional by-products and benefits:

- ° Protection of the visual quality of pine stands throughout the Front Range for more than 7 million annual visitors and 2 million area residents

- ° Increased carrying capacity of about 10% for grazing and browsing species (deer, elk, rabbits, etc.) for 6-8 years following treatment
- ° Improved habitat for bird species which utilize open pine stands (turkey, pine grosbeak, etc.) on 20-25% of the total area
- ° Make wood products available, including an estimated 47MM board feet of lumber, 100,00 cunits of roundwood, and 32,000 cords of fuelwood
- ° Reduction of fire damage and suppression costs on roughly a million acres
- ° Improved livestock grazing conditions on about 250,000 acres.
- ° Completing and implementing multiple use management plans on approximately 100,00 acres of privately-owned forested lands
- ° Providing technical forestry assistance to an estimated 1,000 landowners
- ° Protecting property values on private lands throughout the Front Range
- ° Demonstrating intensive multiple use management on a large area of mixed-ownership forested lands of prime scenic, recreational, and wildlife value
- ° Creating a forest management consciousness throughout the Front Range community
- ° Providing an estimated 3,800 person-years of employment

In order to carry out this project on lands of mixed ownership, funds must come from several sources. Total estimated funding by sources is shown below:

<u>Source</u>	<u>Funds</u>
State	\$3,291,000
Local Agency	382,000
Private (includes labor and equipment provided by landowners)	3,669,000
Forest Service - USDA	38,501,000
TOTAL	45,843,000

Forest Service - USDA funding (\$38,501,000) will come from a combination of State and Private Forestry cooperative programs and National Forest System functions, as shown below:

<u>State and Private Forestry</u>		<u>National Forest System</u>	
Cooperative Forest Management	\$ 977,000	Timber Stand Improvement	\$15,274,000
Forestry Incentives Program	268,000	Commercial Timber Sales	928,000
Agricultural Conservation Program	327,000	Stage II Inventory	609,000
Cooperative Fire Protection	1,743,000	Recreation Management	182,000
General Forestry Assistance	583,000	Wildlife Habitat Management	1,518,000
Insect & Disease Control	5,924,000	Watershed Management	218,000
TOTAL	\$9,822,000	Fire Pre-Suppression	9,950,000
		TOTAL	\$28,679,000

This is a budgetary proposal only. Land management objectives and site specific plans will determine actual treatments for land units and forest stands.

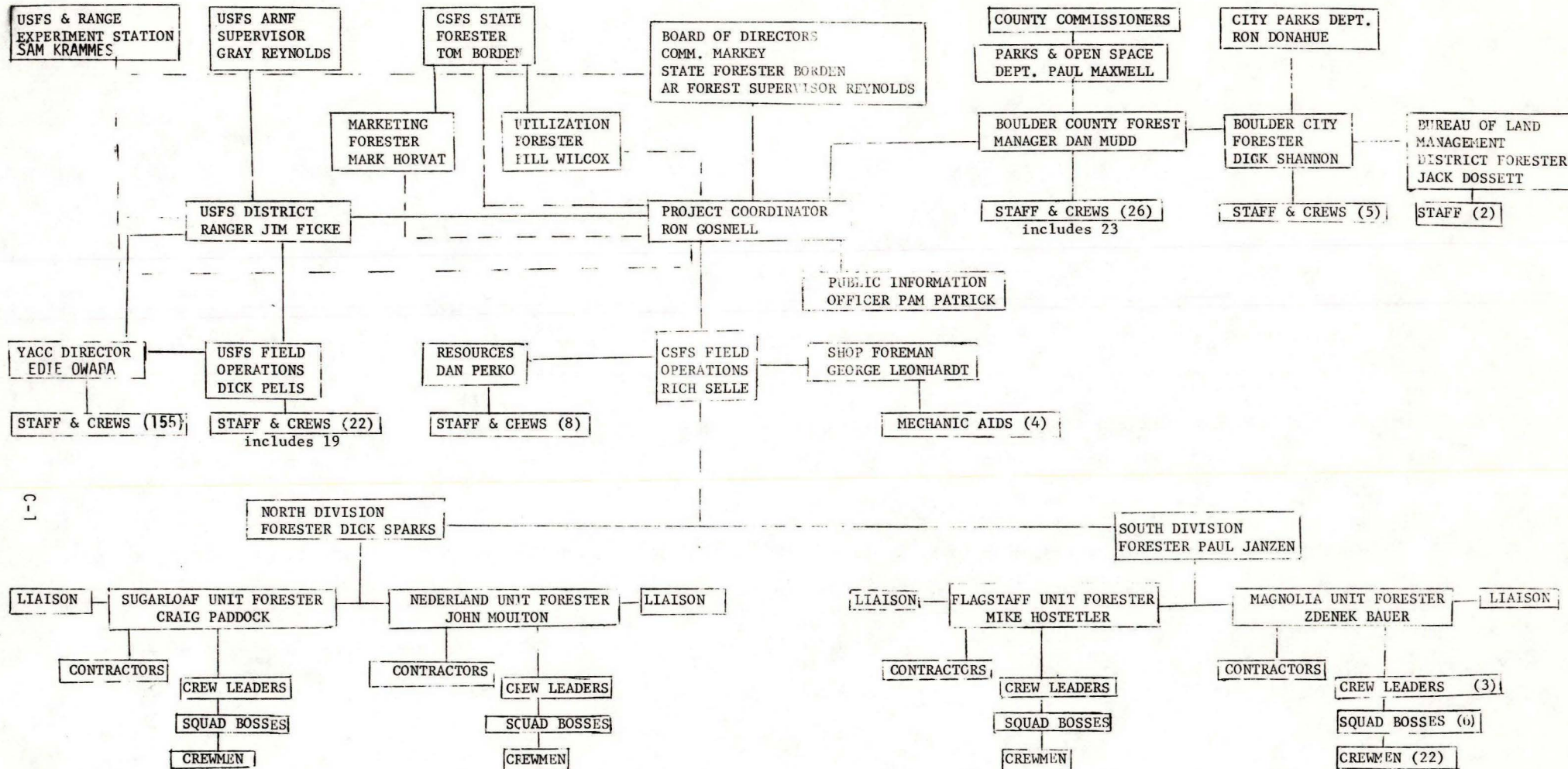
Work that may be accomplished by National Youth Conservation Corps and similar manpower programs will proportionately reduce the funding requests included in this proposal. Policy and procedure changes may bring about funding shifts among Forest Service programs.

Research findings by Rocky Mountain Forest and Range Experiment Station have been used in developing the proposal, and Research will be closely consulted as detailed planning progresses. The Station advises that execution of the proposed management practices on the Front Range will provide an excellent, broad-scale base upon which to validate and refine research data in the ponderosa and lodgepole pine types.

APPENDIX EXHIBIT 3

Initial Colorado Front Range Vegetative Management Organization

COLORADO FRONT RANGE VEGETATIVE MANAGEMENT ORGANIZATION



APPENDIX EXHIBIT 4

Sample Management Prescription and Treatment Standards

Allenspark - Tahosa Valley

CFMDA



*Operating Plan For
National Forest Lands*

Activity Codes and Treatment Standards

ACTIVITY CODES:ALLENSPARK-TAHOSA VALLEY CFMDA

Prescribed activities are designated by standardized Forest Service codes. For reference purposes, a definition of the codes is attached. The prescriptions further expand upon the codes by stating specific activity requirements.

Treatment standards are developed for activities that are repetitive for the CFMDA. The standards will apply unless otherwise stated in operating plan.

P35 INSECT & DISEASE MANAGEMENT - SUPPRESSION (S&P) ACRES
Suppression work using either mechanical, biological, chemical or cultural means. Presuppression and post-suppression survey of operational projects. Implementation of pilot projects including pilot control, demonstration areas, methods application of new technology, survey improvement, and prevention type activities.

LANDLINE LOCATION

062 Corner Search Corners
Actions related to the search for individual corners to find and record the locations of existing corners to avoid loss through time or obliteration. The unit of work is the number of corners searched for.

063 Property Boundary Location Miles
Surveying, marking and posting of property lines between authentic corners to State and/or Federal standards by authorized surveyor. The unit of work is the miles surveyed, marked and posted.

FUELS MANAGEMENT

101 Disposal of Activity Fuels By Burning Acres
The on-site disposal by burning of activity created fuels.

102 Rearrangement of Activity Fuels Acres
The redistribution of fuels on-site to a condition less hazardous or effecting a more rapid deterioration rate.

103 Removal of Activity Fuels Acres
The moving of unwanted fuels off-site for utilization, storage, or disposal.

VISUAL MANAGEMENT

319 Visual Resource Management Acres
Those acres on which a management plan approved visual quality objective (VQO) will be attained.

COMMERCIAL TIMBER SALES

411 CLEARCUTTING

ACRES

Clearcutting is the harvesting in one cut of all trees on an area for the purpose of creating a new, even-aged stand. The area harvested may be a patch, stand, or strip large enough to be mapped or recorded as a separate age class in planning for sustained yield under area regulation. Regeneration is obtained through natural seeding, through sprouting of trees that were in or under the cut stand, or through planting or direct seeding. The Unit of Measure is the number of acres harvested.

412 PREPARATION CUT

ACRES

Preparatory cutting is the removal of trees near the end of a rotation so as to permanently open the canopy and enlarge the crowns of seed bearers, with a view to improving conditions for seed production and natural regeneration, as typically in shelterwood systems. The Unit of Measure is the number of acres harvested.

413 SEED CUT

ACRES

Seed cutting is the removal of trees in a mature stand so as to effect permanent opening of its canopy (if there was no preparatory cutting to do this) and so provide conditions for securing regeneration from the seed of trees retained for that purpose. The Unit of Measure is the number of acres harvested.

414 REMOVAL CUT

ACRES

Removal cutting (final cutting) is the removal of the last seed bearers or shelter trees after regeneration is considered to be established under a shelterwood system. The Unit of Measure is the number of acres harvested.

415 SELECTION CUT

ACRES

Selection cutting is the annual or periodic removal of trees (particularly the mature) individually or in small groups from an uneven-aged forest in order to realize the yield and establish a new crop of irregular constitution. By this method both regeneration cutting and tending of immature stand components are accomplished at each entry. The Unit of Measure is the number of acres harvested.

421 IMPROVEMENT CUTACRES

Improvement cutting is the elimination or suppression of less valuable in favor of more valuable tree growth, typically in mixed, uneven-aged forests. The Unit of Measure is the number of acres harvested.

422 THINNING CUTACRES

A thinning cut is made to harvest excess or unwanted trees in an immature stand. This cutting reduces the stand to a recommended stocking level and is made primarily to accelerate or maintain the rate of diameter increment and secondarily to improve the average form of the trees that remain and harvest usable fiber. The harvest of excess trees should remove existing and predicted mortality in addition to improving the growing conditions for the remaining stems. The Unit of Measure is the number of acres harvested.

423 SANITATION CUT (SALVAGE)ACRES

Sanitation cutting is the removal and exploitation of dead, dying, deteriorating, or susceptible trees to prevent the spread of pests or pathogens and so promote forest hygiene and to recover trees materially damaged by fire, wind, insects, fungi, or other injurious agencies before their timber becomes unmerchantable. The Unit of Measure is the number of acres harvested.

REFORESTATION449 SITE PREPARATION FOR NATURAL REGENERATIONACRES

The preparation of the ground surface in anticipation of natural seedfall, sprouting, or suckering for the re-establishment of the tree crop or tree cover. It includes removal of unwanted vegetation, slash, stumps and roots from a site and/or the shaping of the ground surface. It includes one or a combination of the following types of treatments: soil disturbances, by hand or by mechanical furrowing, dozing, or discing; mechanical or chemical manipulation of vegetative cover to reduce plant competition; prescribed burning of the vegetative cover (including dozer piles); and fertilization if done prior to establishment of natural regeneration. It includes all areas prepared

by force account crews, contractors, or other persons. It includes keeping accurate records, maps, and atlases. (Does not include animal control). The unit of work is the number of acres prepared for natural regeneration by force account work or for which contracts are awarded.

TIMBER STAND IMPROVEMENT

ACRES

452 PRECOMMERCIAL THINNING

The selective felling, deadening, or removal of trees in a young stand primarily to accelerate diameter increment on the remaining stems and maintain a specific stocking or stand density range and improve the vigor and quality of the trees that remain. Included is the treatment or disposal of the resulting slash, service contracts involving salvage privileges, all areas thinned by force account crews, contractors, or other persons, incidental disease control, and contract preparation and keeping accurate records, maps, and atlases. The unit of work is the number of acres treated by force account work or for which contracts are awarded.

FREE USE FIREWOOD

479 FREE USE AND ADMINISTRATIVE FREE USE--All Associated Activities

PERMITS

All timber activities involving products of a non-commercial nature as provided in the regulations. It does not include service contracts involving salvage privileges. It does include all planning and preparation necessary to this activity. It also includes free-use firewood harvest. Administration of the free and administrative free use areas is included. Specifically included are the targeted efforts to promote the use of free use products by minority or under-privileged persons and groups and to promote full use of the many, diverse forest products available for free use by the public and foster an understanding of the dynamic life of the forest through individual and group contacts. The unit of work is the number of permits issued or number of users supervised.

WILDLIFE HABITAT IMPROVEMENTS

607 BIG GAME

ACRE

This includes all structural and nonstructural habitat improvements that benefit targeted big game species. Does not include threatened and endangered species.

608 SMALL AND UPLAND GAME

This includes all structural and nonstructural habitat improvements that benefit targeted small and upland game wildlife species. Does not include threatened and endangered species.

609 OTHER WILDLIFE (NONGAME)

ACRE

This includes all structural and nonstructural habitat improvements that benefit wildlife species other than big, small, upland and waterfowl game or threatened and endangered species.

TREATMENT STANDARDS

Unless otherwise prescribed in the operating plans or prescriptions, the following standards apply for treatments in Forest Management Demonstration Areas.

062 Property Corner Search

Corner searches will be conducted on all treatment areas that border private land to find and record locations of existing corners to avoid loss through time or obligation and to aid in property boundary location.

063 Property Boundary Location

Property boundary locations will be conducted on all treatment areas that border private land to avoid doing treatment on other than Forest Service administered lands and to clearly establish or re-establish land ownership. Surveying, marking and posting of property lines between authentic corners to State and/or Federal Standards will be by an authorized surveyor.

FUELS MANAGEMENT

101 Slash Pile Standards

Within thinned areas, slash piles must be no larger than 6' in diameter and 4' in height. The periphery of the slash pile will be at least 5' from the nearest live tree. Slash piles may be larger in openings where there is no danger of scorching live trees. Slash piles will be compact.

102 Lop and Scatter Standards

To minimize aesthetic impact and to increase decomposition rates, slash will be lopped and scattered to a depth not exceeding 12". Slash from felled trees will be lopped to the top of the stem. In areas where bare soil is exposed, efforts should be made to lop and scatter slash over the bare soil.

103 Removal/Merchantibility Standards

In commercial timber sales and service contracts with salvage, all products with a 3" diameter outside bark at the top end will be removed.

COMMERCIAL TIMBER SALES/TSI

Marking - Unless approved by the U.S. Forest Service, leave trees will not be marked. For TSI, a mark on cut trees at breast height will be sufficient. For commercial timber sales, a stump and a breast mark will be required.

Stumps - Maximum allowable stump heights are 6". Efforts should be made to cut stumps as low to the ground as possible.

- 479 Free Use and Administrative Free Use -- Firewood Gathering
Administrative Free Use for firewood gathering includes all timber activities involving products of a noncommercial nature. It includes all planning, preparation and administration of free-use firewood harvest activities. This includes layout, signing, map preparation, map distribution to the public and on the ground administration.

WILDLIFE HABITAT IMPROVEMENT

607 Big Game - Aspen Regeneration Standards

Aspen patch cuts will range from $\frac{1}{4}$ -3 acres in size. Boundaries of the patch cuts will be irregular to maximize the "edge effect" and to suggest naturally occurring openings. When laying out patch cut boundaries, attempt to maximize incoming solar radiation to the exposed forest floor. Aspen clones can be expanded by removing conifers up to 50' from the periphery of the clone. This practice is particularly appropriate where conifers are blocking incoming sunlight on the south boundary of the cut.

Within the patchcut boundary, all stems including seedlings/saplings will be felled with the exception of 1-2 conifers retained for visual variety, and wildlife snags. Snags may be created by girdling larger aspen and pine; 7 snags per acre will be retained. All aspen slash will be lopped and scattered. All conifer slash will be incorporated into wildlife piles distributed over the patch cut area. The actual number of piles will depend on the amount of conifer slash present. The standards for wildlife pile construction apply.

Aspen regeneration cutting will be done only between October 1 and May 1.

ASPEN REGENERATION TECHNIQUES

To achieve highest quality of aspen regeneration at least 7 conditions should be met:

1. All stems must be cut which may express apical dominance over the germinative tissue in the lateral root system.
2. All shade must be removed to allow the suckers to grow in full sunlight;
3. The ground surface must be sufficiently bare and free of litter or darkened by fire to permit soil temperatures to exceed 70 to 75°F early in the growing season;
4. The stand is cut during a period when carbohydrate storage in the root system is at a maximum;
5. The stand is vigorous and not overmature or commencing break-up;
6. There is minimal disturbance of the lateral roots which usually lie within 4 inches (10 cm) of the soil surface, and from which most sucker growth originates;
7. There is no mechanical disturbance and little or no grazing or browsing pressure on the suckers for at least the first two years after cutting.

608 Small Game - Wildlife Slash Piles

Wildlife slash piles will be about 6' in diameter and 4' in height. Large limbs on tops will be used at the base to insure open space under the pile for bird and mammal use. Location of the pile should be near an edge between two habitat types, either in the forest or in the opening. Specific construction of wildlife piles will depend on the prescribed slash treatment for the site. In stands where slash is piled for burning, slash piles that best meet the above criterion will be retained and designated with red flagging.

609 Non-Game - Wildlife Snags

Snags retained for wildlife habitat will be the largest snags present on the site. If present, a combination of hard and soft (partially decayed) snags will be retained. To increase habitat diversity, retain individual snags as well as clumps of snags. Snags along edges and within openings should be protected. Broken-top, spike-top, and lightning-scarred trees also provide habitat for cavity nesters. Snags will be identified with a metal wildlife tree sign. Snags will be identified before cutting commences.

WILDLIFE REQUIREMENTS AND CONSTRAINTS

Abert Squirrel Standards

Where Abert squirrel standards apply, thinning practices will be modified to insure retention of desirable Abert's habitat. Identify nest sites and leave a minimum group of 6 trees with interlocking crowns and diameters of 11" to 16"DBH. Nests are normally constructed of twigs and needles on a limb next to the trunk 30 to 50' from the ground. Nest trees are commonly codominates or intermediates. Throughout the thinned area where standards apply, retain one group of 6-10 larger diameter pine per acre treated.

Red or Pine Squirrel Standards

Where pine squirrel standards apply, thinning will be modified to protect the 4 or 5 trees immediately around the cone caches or nest trees. The nest is recognizable as a ball of grass 10-20' from the ground.

Goshawk Standards

All activity within a specified nest territory will be restricted from late March to mid-August. Nest trees will not be cut and thinning activities will be modified within the nest territory. Nest trees are generally located on 6-10% north facing slopes near the top of broad ridges, near small openings and within 100 yards of a poletimber stand. The typically large stub nest is located in a mature lodgepole or Douglas-fir usually against the trunk.

During the critical nesting period, restrict activities to within 150 yards of nest site. The surrounding area can be thinned after the critical period (March-August). A .2 acre area surrounding the nest should remain unthinned.

Merriam Turkey Standards

Within Merriam's turkey habitat, retain large, limby old growth pine as roost trees.

LANDINGS

A. Landing Location Considerations

1. Landing Size

It will normally take up to 1/5 acre to front-end load and leave room for pushing slash out of the way and reasonable log storage. It should rarely be necessary to approve landing locations involving more than 1/3 acre. On steep ground it is sometimes practical to store logs along the road to keep a landing small.

2. Topography

- a. Try to locate landings on the most gentle slopes.
- b. Try to locate on ridge points or close to ridge points so that the landing will be tributary to felled timber lying between drainages. Do this as opposed to locating landings which force skidding across drainages. Even though this may sometimes involve less volume being skidded to a landing, this is preferable to skidding across drainages.

3. Watershed Protection

- a. Do not locate landings in or on:

1. Wet or dry drainages.
2. Spongy or poorly-drained ground or ground where active springs are present.
3. Any size meadow.
4. Water front zones.
5. Ground conditions which will permit excavation material or silt from seasonal water runoff to pollute the above or accelerate erosion on roads, clearings, plantations, and other improvements below.

- b. Remember that landings must be winterized and properly drained and there must be provision for safely dispersing water off of landings after use.

4. Protection of Improvements

Normally, landing locations besides permanent roads with significant use by the general public will not be permitted when landing construction or logging impacts will be significant.

5. Construction

In keeping with other considerations as much as possible, try to locate landings in areas which involve as little conifer clearing as feasible. Avoid large cuts and fills. These cause erosion problems. Provide space on the uphill side so that slash can be cleared by pushing it uphill instead of downhill. This consideration applies to slash created as a result

of landing construction as well as slash brought to the landing by the skidding operation. Thus, sale officers should estimate the volume of slash to be skidded to the landing and plan landing locations and size accordingly. If large cuts are necessary, require banks to be adequately sloped and drainage ditches installed at the toe of cut to accomodate runoff. Do not permit landings to be constructed in a manner which may result in the cut or fill sloughing and sliding and creating future erosion problems.

B. Operations on a Landing

1. It is not considered workmanlike for an operator to have so many tractors working a landing that they cause unnecessary damage to the residual stand when getting out of the way from one another.
2. It is best for tractor roads to make the last several chains approach to landings as close to a level grade as feasible. Do not permit more than two tractor roads to enter a landing unless this is the best solution to an unusual problem.
3. Discourage tractor operators from clearing landing slash by pushing it downhill into places awkward to clean. Encourage operators to clear landing slash by pushing it up the hill. This will allow much easier final landing slash disposal.
4. Require slash to be cleared as necessary to keep at least 10 foot clearance from operating equipment.
5. Require any dangerous snags or damaged trees to be felled before using landing.
6. Do not allow operators to construct paths for empty trucks to "dive" into where slash or stand conditions are too hazardous for the risks connected with trucks.

SKID ROADS

1. Skid Road Locations and Construction

Key considerations in skid road and trail location and construction follow:

- a. Location of all tractor roads and skid trails shall be acceptable to Purchaser and Forest Service.

Field officers are expected to take the initiative and flag the locations of skid roads in sensitive areas. Unless operator has a better location which also adequately protects the resource, field officers shall be firm in their locations. Purchaser has right to appeal procedure. In less sensitive areas field officers must walk the ground enough to get the feel of the situation. Field officers will then be in position to accept proposed flagged locations of operator.

Field officers should stay at least one week ahead of logging on locations of skid roads, landings and temporary roads. Keep superiors informed if you get behind.

- b. Require all roads to be constructed in advance which are going to be used for skidding a significant number of turns.
- c. Locate skidding routes through less heavily stocked areas and unstocked areas to the extent needed to assure meeting resource management objectives. Do this even though this may involve a more circuitous route.
- d. Plan landing and skid road locations so that crossing of sensitive streams with skid roads is very rare. If it is necessary to cross a sensitive stream, install the same temporary log crossings or culverts as required for a temporary road. Resistant stream crossings closer than 5 chains apart indicate lack of planning.
- e. If it is essential to cross a sensitive or resistant drainage with a tractor road, require operator to install a log bridge. (Reference Skid Trail and other Temporary Road Drainage Crossings). Do not cross drainages at locations or angles where water bars cannot be later installed so that run-off can be drained off the skid road before it meets the drainage.
- f. Do not allow operators to build tractor roads involving through-cuts that cannot be properly drained before reaching landings, drainage, etc.
- g. Plan skid road locations so that most of them converge before reaching sensitive areas such as landings. Don't allow more than two skid roads to enter a landing unless you can personally assure no problems over the winter.

- h. On steeper slopes do not permit tractor roads to be located straight down the hill. This practice normally will not complement falling leads, anyway. Such locations too often result in poor water bar construction and impossible drainage situations.
- i. On steep ground locate skid roads so they "quarter" or angle down the hill. These normally complement falling leads and are easy to drain. Undulate or break grade to alleviate drainage problems. Never agree to locations that involve long, sustained-grades. Break grade as close to about every 5 chains as is possible. Remember, it is very difficult to properly install water bars with tractors on ground over 30 percent slope. Whenever feasible, do not permit skid roads to come off the hill at road gradients over 30 percent. This is because up to this grade we can properly drain such roads under most conditions. Over 30 percent, tractor control on the contour becomes limited and water bars start to suffer. Hand water bars are figured necessary on slopes over 40 percent.
- j. On ground that is not broken up, keep tractor roads at least two chains apart, except where they have to converge.
- k. A tractor road about 10-feet wide is sufficient for straight skidding. Allow up to 20-feet wide for curves and a great deal of skidding use.
- l. Avoid sharp turns as much as possible. Require shear logs to be dropped off at sharp turns when necessary to protect needed stocking.
- m. Do not allow tractor roads to be constructed on ground slopes over 30 percent in regeneration units without special approval of superiors.
- n. Do not allow tractor roads to be constructed on ground slopes over 40 percent in release and selection areas.
- o. Do not allow tractor roads to be constructed or allow skidding in loose decomposed granite on slopes over 20 percent unless you can assure erosion prevention by making special arrangements to protect the soil.
- p. When soil conditions permit, construct tractor roads to the depth necessary to keep the tail-end of skidded logs from rolling down the hill on curves and siwashing and destroying needed stocking.
- q. If the operator has already felled timber before you have agreed on skid road locations, require the skid road location needed to complement the falling lead - even if it means the operator has to skid up-hill or use a circuitous route. This will encourage him to coordinate falling leads and skid road

locations the next time.

- r. Tractor roads are not to be located in wet areas, spongy areas, slide areas, meadows, drainages, dry draws, closely parallel to the above, closely parallel to permanent roads or any other place where the added run-off from the tractor road will cause erosion or damage to the watershed.

2. Skidding Operations

- a. The following considerations apply to skidding operations in residual timber where the objective is to cause no unnecessary damage to needed stocking in the residual stand.
 - 1. Require tractor operators to back the tractor off of constructed skid roads in areas containing needed stocking. Back tractor as close to logs as stocking conditions will tolerate. Hook on to bucked logs and end-line one log at a time out of the residual stand. Require operators to bunch logs to make up a turn of logs at locations where needed stocking will not be damaged.
 - 2. Skid or end-line logs out of the residual stand to construct tractor roads with as little "siwash" affect as is practical.
 - 3. Require bumper or shear logs to be used when necessary to keep log turns from "siwashing" and damaging needed stocking.
 - 4. Require stage skidding when it is not feasible to skid all timber in one stage. Even if all timber has been felled, require stage skidding when necessary to avoid excessive damage.
 - 5. Require operator to cut all limbs from logs to be skidded.
 - 6. Do not allow tree length skidding when tractor roads are not located to accommodate this without excessive damage to needed stocking.
 - 7. Limit the number of tractors involved in skidding to a landing to the number practical for the skid road layout. Don't allow so many tractors to be used that they are getting in one another's way and causing unnecessary damage to needed stocking.
 - 8. Don't allow tractors to "wear out a skid road". Before a tractor road becomes channelled to the point where it cannot be properly water barred and drained, retire it.

9. Stop all skidding in unauthorized areas and on unaccepted skid road locations when discovered.
10. Do not allow arches or illegal dozer blades to operate off of constructed tractor roads.

EROSION PREVENTION AND CONTROL

A. Erosion Control Standards for Skid Trails, Landings, and Other Temporary Roads

1. a. Once use is completed, temporary roads are to be obliterated to the extent possible, and rendered permanently unusable by any vehicle.
- b. Temporary culverts, bridges and/or fills completely removed, and excavated soil disposed of where it will become stabilized and not enter stream channels. Loose soil will be removed from drainageways so that banks are restored to original slopes and alignment. Raw soil will be seeded to grass, rip-rapped or otherwise stabilized so that bank-cutting or sloughing after the first year is likely to diminish each year rather than continue or become worse.
- c. No failure of cross ditches or dips.
- d. Cross ditches spaced, located, and constructed in accord with standards. Ditches constructed have effectively intercepted run-off.
- e. Little evidence of soil movement beyond ends of cross ditches or dips (i.e., deposits of silt or gullying beyond the constructed ditch, where present, must be restricted in area and stabilized).
- f. No gullies, extensive rilling, or heavy sheet erosion on road surface or on fill slopes. (No rills 1/ more than 50 feet long, and not more than 10 such rills per acre, or more than an average of one-tenth inch of sheet erosion).
- g. Diverted water did not return to road or cross it except at planned and prepared locations.
- h. Road or skid trail is outsloped wherever feasible. 2/

1/ The term "rill", as used herein, refers to small depressions in the soil surface caused by the washing away of soil material. Any depression larger than 4 inches deep or 6 inches wide is considered a gully or streamcourse.

2/ Outsloped roads may be hazardous to traffic when wet. Outsloping should not exceed 6 inches per 10 feet of width. Clayey soils should be gravelled to provide traction if wet weather logging will be done.

1. Where possible, effective barriers will be placed or built into all temporary roads and skid trails to discourage mechanized travel.
2. Landings
 - a. Only minor damage results from water flowing onto or across landing. No gullies. Rills, if present, are small, widely scattered (not over 10 per acre) and not over 50 feet in length. Sheet erosion does not exceed an average of one-tenth inch.
 - b. Drainage ditches are stable, showing little evidence of soil movement.
 - c. If landing is near a water course, the natural channel is clean, and eroded material, if any, is deposited above the high water line.
 - d. Water is diverted from main skid roads and dispersed before reaching landing.
3. Logged-Over Area (Other than roads, skid trails, landings, and other areas of major soil disturbance)
 - a. The area as a whole should show strong evidence of stabilizing in two to three years following logging and post-sale treatment. There should be no gullying or extensive rilling. Sheet erosion should average less than one-tenth inch, and rills, if present, should not exceed 10 per acre or 50 feet in length.
4. Summary

By analysis of the results inventoried under this evaluation section, erosion control on an area can be rated as satisfactory if above criteria are equalled or exceeded.

"Acceptable" erosion control means only minor deviation from criteria, provided no major and lasting damage is caused to soil or water.

In the final analysis, some soil disturbance and minor soil movement is unavoidable on any timber sale area. However, if proper prevention and control measures are taken, they will result in rapid healing of the area with no aggravated continuing movement of soils.

Knowledge gained from this type of evaluation on completed sales should result in improved erosion practices on future sales.

RECOMMENDED SPACING FOR CROSS DRAINAGE 3/
ON TEMPORARY ROADS, TRACTOR ROADS, SKID TRAILS AND FIRE LINES

Road or Trail Gradient (%)	Erosion Hazard Rating for Area 4/		
	(Low) Feet	(Medium) Feet	(High) Feet
1-6	400	350	300
7-9	300	250	200
10-14	200	175	150
15-20	150	120	90
21-40	90	70	50
41-60	50	40	25

3/ Above spacings are to be measured on the slope.

4/ EHR's based on general area around road or trail, not on the bared area itself.

This table should be considered as a guide only. Judgement must be used in locating cross ditches. In addition to proper spacing, based on the above table, cross ditches where possible should discharge into undisturbed areas, preferably rocky ground or areas well protected with slash and vegetative cover. They should also be located so as to promptly intercept run-off from lateral skid trails or other features that may result in water concentrations.

B. Construction Standards

1. Cross-Drain Construction

- a. Cross-drainages (also referred to as water bars, water breaks, or dips) are usually constructed by angle-dozers on temporary truck roads, tractor roads, skid trails and fire lines to control erosion. The Forest Service will mark the location of all needed cross-ditches on-the-ground. All cross-ditches should be constructed deep enough, with a clean outlet, so that they will not fail even through abuse, including travel over them by tractors or four-wheel equipment. Deep rugged cross-ditches will tend to discourage unauthorized travel on temporary roads that have been stabilized and closed to travel.

Spacing of cross-ditches should be based on "Recommended Spacing for Cross-Drainage on Temporary Roads, Tractor Roads, Skid Trails, and Fire Lines." Note that variation in spacing is recommended to fit local conditions.

- b. Location of water bars shall be so situated that water is channeled onto rocks or other dense, low vegetation or duff in a manner which results in the least impact on soil. For this reason, do not blindly follow spacing guidelines. Shorten up the recommended spacing between water bars where necessary to take advantage of natural features for satisfactory dispersal of water flowing from water bar outlets.

A serious mistake is often made in the spacing of water bars in that an inexperienced person does not take into account the affect of more than one skid road or road draining onto a lower road. In general, plan to water bar roads so that as little water as possible drains onto a lower road. Also, in ditching a lower road, shorten the distance between water bars to an interval commensurate with the drainage from tributary roads. Roads and skid roads should never be located where troughs result and there is no way to divert water.

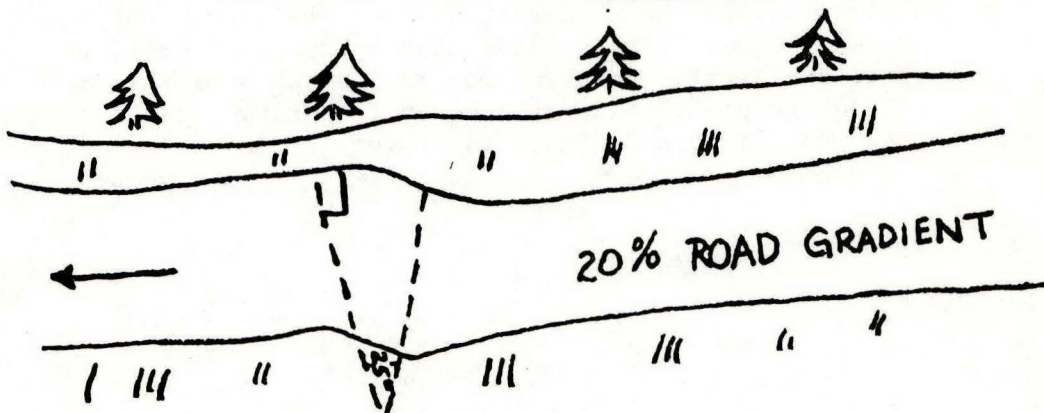
- c. Angle of a water bar should be approximately as follows: Determine average gradient (%) of road between bar being installed and the location of the next water bar up the road. Add the number "5" to the average gradient percent and this gives the numerical value in degrees that the angle of the water bar should be.

PROVIDED: Do not install water bars at more than an approximately 45 degree angle.

Note that except for virtually level ground, "square water bars" are not acceptable. They become filled with sediment the first winter or two. Thereafter, they are useless.

An example of an angled water bar follows:

Example: Average road gradient between water bars is 20%.
Therefore, $20 + 5 = 25$ degrees angle of water bar.



- d. Height of water bar should be equivalent to a compacted height of at least eighteen inches above the bottom of ditch. (It is sometimes even better to make water bars higher). The objective here is to make the water bar last for many years against the onslaught of four-wheel drive vehicles, cattle and horses, and other destructive influences.
- e. Depth of water bar should be constructed so the bottom of the ditch is in solid soil. Do not accept water bars constructed out of "dust accumulations". Normally, figure the bottom of the water ditch should be constructed to a depth which involves about six inches of excavation from reasonably solid soil. A ditch constructed out of dust or loose soil will not normally be effective in the long run.
- f. Pitch, or "fall off", or elevational difference between the high side (beginning) of the water bar and the outlet of the water bar should be about as follows:
- Low erosion hazard rating - figure the "pitch" should be equivalent to the gradient (%) of the road itself plus one to two percent more. Example: A water bar that is 15 feet long on a road with a 10% gradient should have a pitch of about $11\frac{1}{2}\% \times 15 \text{ feet} = 1.173 \text{ feet} = 21 \text{ inches}$. (See following chart.)

Medium erosion hazard rating - figure the pitch should be equivalent to the road gradient (%) plus 3%.

High erosion hazard rating - figure the pitch should be equivalent to the road gradient (%) plus 5%.

The following chart has been prepared as a guide for your convenience. No one expects you to measure precisely. Just use this as a guide. With experience you will find it is not practical to build with a tractor the amount of pitch shown for the steeper slopes. Slopes over 40% can usually be best constructed by hand labor.

WATER BAR PITCH

(Difference in Elevation Between High
End of Water Bar and Low End, Inches)

Average Gradient of Road (%)	Bar = 10 feet length Erosion Hazard Rating			Bar = 15 feet length Erosion Hazard Rating		
	L	M	H	L	M	H
	(Inches Difference in Elevation)					
5	8	10	12	12	15	18
10	14	16	18	21	24	27
15	20	22	24	30	33	36
20	26	28	30	39	42	45
25	32	34	36	48	51	54
30	38	40	42	57	60	63
35	44	46	48	67	70	73
40	50	52	54	76	79	82
45	56	58	60	85	88	91
50	62	64	66	94	97	100

- g. Width of water bar channels should be wide enough to avoid plugging when a normal amount of sloughing occurs. Remember the impact of four-wheel drive vehicles.

2. Skid Trail and Other Temporary Road Drainage Crossings.

For intermitant and perennial drainages, the use of log bridges is prescribed. Debris or log fill bridges are not acceptable. The bridges do not have to be modern, primitive construction will do. This method may be somewhat more labor intensive but problems are minimized.

The suggested design is to put two or three logs spanning the drainage at a width to accommodate the skidder's wheels. These logs can be dug into the banks to secure them. Cross logs can be secured onto the stringers to permit crossing the drainage.

After operations are completed, the bridge will be removed and the banks restored.

Allenspark - Tahoe Valley

CFMDA



*Operating Plan For
National Forest Lands*

Compartment 108-002

OPERATING PLAN FOR NATIONAL FOREST LANDS

COMPARTMENT 108-002

RECOMMENDED BY Ron Lowell DATE 10/31/79
State District Forester

RECOMMENDED BY Margaret B. Marking DATE 11-6-79
Boulder County Commissioner

RECOMMENDED BY Whitney K. Lerer DATE 10/29/79
District Ranger

APPROVED BY T. Borden DATE 11/2/79
State Forester

APPROVED BY David H. [Signature] DATE 11/15/79
Forest Supervisor

COMPARTMENT 108-002

INTRODUCTION

This compartment encompasses 2,248 acres in the northern portion of the Allenspark-Tahosa Valley CFMDA. 918 acres of this total are National Forest lands with the bulk of this National Forest ownership occurring in the northeast section of the compartment.

This compartment can be characterized as being moderately to heavily forested with occasional riparian zones along Cabin Creek and Tahosa Creek. Aspen and small meadows are also interspersed throughout the area. Wildlife use, particularly elk, is intensive in these aspen groves and small meadows.

Compartment 002 is heavily developed with residences and summer homes. This development is concentrated along Colorado Highway 7, Big Owl Road, Boulder County Road 82 and near Meeker Park. In addition, there are several summer homes on National Forest land adjacent to Rocky Mountain National Park.

Recreation use throughout this area is intensive. There is one picnic ground and an overflow camping area on National Forest land. In addition, there are several private enterprises that cater to the recreating public. In addition to camping and picnicing, recreational driving is popular along the Pierson Park-House Rock 4 Wheel Drive road which forms the eastern boundary of the compartment. Rocky Mountain National Park is the western boundary.

Stand		04	05	06	07
Acres		285	137	74	100
Slope		20%	40%	40%	40%
Aspect		Southwest	South	Northeast	Northeast
Site Index		28/50;44/100	23/50;35/100	20/50;31/100	-
Erosion Cond. Class		01	01-02	01	01
Visual Class		Retention - Intermediate	Retention - Intermediate	Modification - Inter.	Modification - Inter.
Per Acre	DBH	7.4"	7.5"	7.9"	9.2"
	Ht.	26'	27'	31'	36'
	AGE	71	94	85	100
	STEMS	141	235	229	141
	BA	48	80	84	72
CUNITS (5in+)		4.00	7.42	9.79	9.08
MBF SCRIB. (9in+)		.700	1.131	1.478	1.203
FUELS	LOADING	Nat-fuels low: patches of high act. fuels on site	Low natural fuels	Mod-high Nat-fuels due to prev. logging & insects	Low natural fuels
	RISK	Moderate-4 WD access	Low risk - limited access	Low risk - limited access	Moderate - 4 WD access
Stand Description		Diverse stand of lodgepole and ponderosa pine mixed with meadows and aspen groves. All ages and size classes are represented. Stocking ranges from non-stocked to dense. Mistletoe is present to varying degrees throughout stand. Stand 9C (11 acres) has been added to stand 4C for management purposes. Elk use is intensive in this stand. Stand is a portion of Twin Sisters Allot.	Mixed stand of ponderosa pine, lodgepole pine and Douglas-fir with aspen. Upper reaches of stand are on steep, rocky slopes.	Predominately decadent lodgepole pine stand with Douglas-fir and aspen. On east side of ridge, overstory is diseased and dying. West side of ridge is steep and unworkable.	Lodgepole pine poletimber stand with Douglas-fir and aspen on the east side of ridge. Stand on west side of ridge is mixed sawtimber on steeper slopes. Elk use of aspen is present. Mistletoe is scattered throughout stand. Aspen is successional to the lodgepole pine.

TIMBER RESOURCE PLAN AND MULTIPLE USE COORDINATION SHEET

Compartment No. 108-002

Stand	04A-80 Acres	04B-26 Acres	04C-70 Acres	04D-14 Acres
Activity TSI Needs (Inform Table 2)	063 - 1 mile (includes boundary for entire stand) 607 - 15 acres	101 - 13 acres 103 - 26 acres 422 - 13 acres 607 - 13 acres 608 - 13 acres 609 - 13 acres	102 - 30 acres 103 - 40 acres 412 - 10 acres 422 - 30 acres 607 - 10 acres 608 - 30 acres 609 - 30 acres	35 - 14 acres 101 - 14 acres 103 - 14 acres 412 - 7 acres 413 - 7 acres 449 - 7 acres 608 - 14 acres 609 - 14 acres
Schedule or Completion Date				
Multiple Use Management Coordination and Constraints D-26		608 - Retain 6 slash piles per acre as wildlife piles 609 - Identify and protect 7 snags/acre throughout stand.	608 - Create 4-6 wildlife piles per acre in cut-over areas. 609 - Identify and prot- ect 7 snags/acre throughout stand.	Abert squirrel standards apply - protect occupied habitat only. 608 - Create 6 wildlife piles per acre 609 - Identify and protect 4 snags/acre.
Protection Measures		101 - Pile slash for burn- ings and wildlife cover.	102 - Lop and scatter slash.	101 - Pile slash for burn- ing with exception of wildlife piles. 103 - Remove logs on site from previous sale.

TIMBER RESOURCE PLAN AND MULTIPLE USE COORDINATION SHEET

Compartment No. 108-002

Stand	04A-80 Acres	04B-26 Acres	04C-70 Acres	04D-14 Acres
Marking Guides or TSI Methods	<p>607 - Regenerate aspen where aspen-conifer succession is occurring, and where there is an adequate overstory indicating aspen will do well on site.</p> <p>Possibility exists for broadcast burning.</p>	<p>422 - Thin primarily from above removing mistletoe infected ponderosa pine over-story. Where mistletoe has infected understory, either remove in thinning or include in patch cut. Thin seed/saps poletimber to GSL 120 favoring species mix. Retain larger Douglas-fir throughout stand.</p> <p>607 - Aspen cuts on lower slope should be where aspen is successional to pine. Aspen cuts on upper slopes should include removal of mistletoe infected pine. Retain healthy, attractive aspen for variety. Aspen regeneration standards apply.</p>	<p>412 - Where Douglas-fir sawtimber is present in sufficient quantity, use shelterwood to regenerate. Retain a BA of 40. In pine stands with a mistletoe infected under-story, use shelterwood to regenerate. Retain a BA of 30. Remove infested understory.</p> <p>422 - In mistletoe free patches, thin from above to GSL 90. Isolate mistletoe infested areas from non-infested areas with strip cuts.</p> <p>607 - In mistletoe infested pine where aspen is present, patch cut to regenerate aspen.</p>	<p>413 - Group seed tree cut on slopes less than 15%. Retain 3-4 groups per acre containing 4-6 trees per group. Where slope exceeds 15%, use two cut shelterwood leaving a BA of 60. Thin poletimber patches present in stand to GSL 100.</p> <p>449 - Prepare site for natural regeneration around seed tree groups.</p>

TIMBER RESOURCE PLAN AND MULTIPLE USE COORDINATION SHEET

Compartment No. 108-002

Stand	04-E 39 Acres	05-A	05-B	06
Activity TSI Needs (Inform Table 2)	607 - 15 acres	102 - 35 acres 103 - 35 acres 422 - 35 acres 607 - 5 acres 608 - 10 acres	102 - 10 acres 103 - 15 acres 415 - 10 acres 607 - 5 acres 609 - 10 acres	102 - 40 acres 103 - 40 acres 423 - 40 acres 608 - 40 acres 609 - 40 acres
Schedule or Completion Date				
Multiple Use Management Coordination and Constraints D-28		608 - Create 4-6 wildlife piles per acre for a depth of 200' along the southern border of treatment area.	608 - Create 4 wildlife piles per acre. 609 - Protect 4-6 snags per acre.	608 - Create 4 wildlife piles per acre. 609 - Protect 7 snags per acre.
Protection Measures		102 - Lop and scatter slash with excep- tion of wildlife piles.	102 - Lop and scatter slash with excep- tion of wildlife piles.	Restrict activities to slopes less than 40% on east side of ridge. 102-Lop and scatter slash with exception of wild- life piles. 423-Where an adequate und- erstory has not develop- ed(300 trees/acre)use group selection to re- move overstory.

Compartment No. 108-002

Stand	04-E 39 Acres	05-A	05-B	06
Marking Guides or TSI Methods	607 - Aspen regeneration standards apply. Best potential is in northern portion of stand where aspen and conifers are intermixed. Patch cuts should be layed out through the stand so that uncut areas are left between patch cuts.	422 - For 200' strip along meadow, thin to GSL 120. Phase into GSL 100 after 200'. Strive for species diversity. At west end of stand, remove and/or isolate mistletoe infested ponderosa pine. Group selection cuts up to 1/3 acre in size are acceptable to eliminate mistletoe. 607 - Aspen cuts in areas where aspen is successional to pine. Aspen regeneration standards apply.	415 - Remove Douglas-fir and ponderosa pine overstory where adequate regeneration is present (300 trees per acre). Where adequate regeneration is not present, use a shelterwood cut retaining a BA of 60. 607 - Aspen regeneration standards apply.	423 - Basically remove all overstory trees (height greater than 20') to release desirable growing stock. Large, healthy Douglas-fir with good form classes should be retained as seed source. Maximum spacing for residual understory is 10' X 10'. Remove all mistletoe infected trees in the understory. Strive for species diversity. Salvage standing dead material. Do not treat aspen.

TIMBER RESOURCE PLAN AND MULTIPLE USE COORDINATION SHEET

Compartment No. 108-002

Stand	07			
Activity TSI Needs (Inform Table 2)	102 - 65 acres 103 - 75 acres 422 - 65 acres 607 - 10 acres 608 - 65 acres 609 - 65 acres			
Schedule or Completion Date				
Multiple Use Management Coordination and Constraints	Pine squirrel standards apply. 608 - Create 4 wildlife piles per acre. 609 - Protect 4-6 snags per acre.			
Protection Measures	102 - Lop and scatter slash with excep- tion of wildlife piles.			

TIMBER RESOURCE PLAN AND MULTIPLE USE COORDINATION SHEET

Compartment No. 108-002

Stand	07			
Marking Guides or TSI Methods	<p>422 - On west side of stand, thin lodgepole from underneath to GSL 130. Retain occasional large overstory trees. On east side of stand, thin from below to GSL 110. Favor Douglas-fir over mistletoe infected ponderosa pine in northern part of stand, otherwise favor species diversity. Along northern border of stand adjacent to aspen, retain a GSL of 140. Favor spruce-fir here.</p> <p>607 - Aspen regeneration standards apply.</p>			

TIMBER RESOURCE PLAN AND MULTIPLE USE COORDINATION SHEET

Compartment No. 108-002

Stand		08	09	14	15
Acres		12	136	127	25
Slope		10%	20%	5%	6%
Aspect		Southwest	Southwest	Flat	Flat
Site Index		18/50:35/100	29/50:33/100	-	24/50:42/100
Erosion Cond. Class		01	01	01	01
Visual Class		Retention - Intermediate	Retention - Intermediate	Retention - Intermediate	Retention - Intermediate
Per Acre Stand Avg.	DBH	7.1"	8.9"	7.8"	8.5"
	Ht.	35'	30'	30'	38'
	AGE	92	82	93	114
	STEMS	423	101	452	278
	BA	133	51	160	124
CUNITS (5in+)		16.16	5.52	17.94	17.98
MBF SCRIB. (9in+)		2.521	1.249	2.736	3.858
FUELS	LOADING	Low natural fuels		Moderate natural fuels	Low natural fuels
	RISK	Low risk - 4 WD access		High-campground and summer homes	High-summer homes, picnic ground & Colo. Hwy. 7
D-32	Stand Description	Mixed stand of Douglas-fir, ponderosa pine, lodgepole and aspen. An array of ages and size classes are present. Aspen is successional to the conifers.	Diverse stand with variety of species, sizes and age classes. There are uneven-aged groups of ponderosa pine heavily infected with mistletoe, groups of mature ponderosa pine, two-storied stands of Douglas-fir and lodgepole pine. Aspen is scattered throughout the stand. Stand 9C (11 acres) has been added to stand 4C for management purposes.	Lodgepole pine poletimber stand with numerous aspen patches. Aspen is successional to the lodgepole. Mistletoe is invading the stand from the west. Elk use is evident in the aspen patches. Several trails pass through the stand.	Ponderosa pine sawtimber stand with ponderosa poletimber, lodgepole and aspen. Stand is clumpy in nature. Meeker Park picnic ground is located in the northern part of the stand. There is also a summer home group within the stand.

TIMBER RESOURCE PLAN AND MULTIPLE USE COORDINATION SHEET

Compartment No. 108-002

Stand	08	09-A 85 Acres	09-A 85 Acres	09-B 20 acres
Activity TSI Needs (Inform Table 2)	063 - 1/4 mile 101 - 7 acres 103 - 7 acres 422 - 7 acres 607 - 2 acres 608 - 7 acres 609 - 7 acres	063 - 1.3 miles 101 - 52 acres 103 - 52 acres 412 - 6 acres 422 - 46 acres 607 - 5 acres 608 - 52 acres 609 - 52 acres	(continued from previous column: see next page)	607 - 3 acres
Schedule or Completion Date				
Multiple Use Management Coordination and Constraints	Abert squirrel standards apply. 608 - Create 6 wildlife piles per acre. 609 - Identify and prot- ect 7 snags per acre throughout stand.	Abert squirrel standards apply in ponderosa pine sawtimber. 608 - Create 4 wildlife piles per acre. 609 - Identify and pro- tect up to 7 snags per acre throughout stand.		
Protection Measures	101 - Pile slash gener- ated for burning.	101 - Pile slash generated for burning.		

Compartment No. 108-002

Stand	08	09-A 85 Acres	09-A 85 Acres	09-B
Marking Guides or TSI Methods	<p>422 - Thin from above to GSL 110. Maintain a species mix. Thinning follows southern boundary of stand. Patch cut 1 acre of mature ponderosa pine and Douglas-fir for regeneration.</p> <p>607 - Regenerate aspen on north slope where aspen is successional to lodgepole pine. Aspen regeneration standards apply.</p>	<p>412 - In mature ponderosa pine patches $\frac{1}{2}$ acre or larger, use two-step shelterwood. Retain a BA of 60 leaving well formed, vigorous trees that are mistletoe free.</p> <p>422 - Marking guides will vary with stand conditions. In uneven-aged portions of stand, thin from all age classes selecting against diseased and poor formed trees. Small groups of mistletoe infected trees up to $\frac{1}{2}$ acre in size may be removed if aspen is present within the group. Residual spacing will vary depending on good leave trees. Spacing between residuals should be at least 14'. In two-storied Douglas-fir, ponderosa pine stands, remove overstory with exception of 4-6 vigorous, well formed Douglas-fir trees per acre. Thin mixed</p>	<p>(continued from pervious column)</p> <p>understory to a 12' X 12' spacing selecting against mistletoe infected pine. In mixed poletimber stands, thin to GSL 100 favoring a species mix. In mixed Douglas-fir, lodgepole and ponderosa pine, strive for verticle diversity by retaining vigorous Douglas-fir of all age classes. Select against all mistletoe infected ponderosa pine.</p> <p>607 - Aspen regeneration standards apply. Intersperse cuts with poletimber and mistletoe infected pine.</p>	<p>607 - Aspen regeneration standards apply. Intersperse small aspen patch cuts ($\frac{1}{2}$ acre) throughout stand to increase diversity and forage.</p>

TIMBER RESOURCE PLAN AND MULTIPLE USE COORDINATION SHEET

Compartment No. 108-002

Stand	14	15		
Activity TSI Needs (Inform Table 2)	063 - ¼ mile (south bdry) 102 - 100 acres 103 - 120 acres 422 - 50 acres 452 - 50 acres 607 - 20 acres 608 - 100 acres	063 - ½ mile 101 - 3 acres 102 - 20 acres 103 - 23 acres 422 - 20 acres 452 - 3 acres 608 - 20 acres		
Schedule or Completion Date				
D-35 Multiple Use Management Coordination and Constraints	All hiking and riding trails must be kept free of slash. Protect pine squirrel caches and nest sites. Stump heights must be as close to the ground as possible. 608 - Create 2 wildlife piles per acre.	Abert squirrel standards apply. 608 - Create 6 slash piles per acre on west side of highway.		
Protection Measures	102 - Lop and scatter slash to 6" depth within 100' along sides of trails. Lop and scatter slash to 12" depth on remainder of area.	102 - Chip all slash on east side of Hwy.7. Lop and scatter slash on west side of Highway 7.		

TIMBER RESOURCE PLAN AND MULTIPLE USE COORDINATION SHEET

Compartment No. 108-002

Stand	14	15		
Marking Guides or TSI Methods	<p>422 & 452 - Thin from below to GSL 120. In mixed portions of stand where ponderosa pine component exceeds 30%, thin to GSL 100. Retain old growth ponder- osa pine for varie- ty, removing only condominant and intermediate trees of poor form. Isolate dwarf mis- tletoe where pos- sible with aspen patch cuts. Do NOT treat area south of road to summer homes.</p> <p>607 - Intersperse numer- ous small patch cuts throughout stand that are $\frac{1}{4}$ acre in size. First priority is in areas where aspen is successional to pine. Second prior- ity is decadent aspen stands. Re- tain vigorous, healthy clones. Aspen regeneration standards apply.</p>	<p>422 - Free thinning from all age classes to BA 80. Maintain species diversity and uneven-aged stands.</p> <p>452 - Thin lodgepole pine around picnic area to GSL 130.</p>		

Compartment No. 108-002

Stand	16	17		
Acres	10	8		
Slope	20%	20%		
Aspect	East	East		
Site Index	-	-		
Erosion Cond. Class	01	01		
Visual Class	Modification	Modification		
DBH	1.5"	-		
Per Acre Ht.	10'	-		
Stand AGE	-	-		
Avg. STEMS	2500	-		
BA	-	-		
CUNITS (5in+)	-	-		
MBF SCRIB. (9in+)	-	-		
FUELS	LOADING	Moderate activity fuels from previous sale		
	RISK	Moderate - 4 WD access		
D-37 Stand Description	Lodgepole pine seed/sap stand with Douglas-fir and spruce. Stand is heavily stocked with dense clumps of lodgepole pine.	Old growth stand which is being invaded by spruce and lodgepole pine. Elk browsing is heavy throughout area.		

TIMBER RESOURCE PLAN AND MULTIPLE USE COORDINATION SHEET

Compartment No. 108-002

Stand	16	17		
Activity TSI Needs (Inform Table 2)	102 - 10 acres 452 - 10 acres 608 - 10 acres	607 - 3 acres 609 - 3 acres		
Schedule or Completion Date				
Multiple Use Management Coordination and Constraints	608 - Create 4 wildlife piles per acre.	609 - Identify and pro- tect 6-10 snags per acre.		
Protection Measures	102 - Lop and scatter slash and stems.			

Compartment No. 108-002

Stand	16	17		
<p>Marking Guides or TSI Methods</p>	<p>452 - Release desirable growing stock trees from competition. Desired spacing for growing stock trees is 9' X 9'. Remove dominant wolf trees or undesirable individuals so that an even-aged stand will develop.</p> <p>Consider treating stand through use of a commercial Christmas tree sale.</p>	<p>607 - Patch cut decadent stand on bench above road. Do not cut other species such as alder, maple, etc. Retain smaller, well formed spruce and fir within patch.</p> <p>609 - Identify and/or create and protect 6-10 large snags per acre (girdle large, live trees as necessary).</p>		






Activity	Stand																	TOTAL
	04A	04B	04C	04D	04E	05A	05B	06	07	08	09A	09B	14	15	16	17		
P-35 Insect Suppression				14A														14 A
063 Prop. Bdry. Loc.	1 M									½M	1.3M		½M	½M				3.3 M
Fuels Management		26A	40A	14A		35A	15A	40A	75A	7A	52A		120A	23A	10A			457 A
101 - Burning		13A		14A						7A	52A			3A				
102 - Rearrangement			30A			35A	10A	40A	65A				100A	20A	10A			
103 - Removal		26A	40A	14A		35A	15A	40A	75A	7A	52A		120A	23A				
Commercial Sales		13A	40A	14A		35A	10A	40A	65A	7A	52A		50A	20A				346 A
412 - Prep. Cut			10A	7A							6A							
413 - Seed Cut				7A														
415 - Selec. Cut							10A											
422 - Thinning Cut		13A	30A			35A			65A	7A	46A		50A	20A				
423 - Salvage Cut								40A										
Reforestation																		
449 - Site Prep.				7A														7 A
TSI																		
452 - Precom. Thin													50A	3A	10A			63 A
Wildlife Hab: Big Game																		
607-Aspen Regen.	15A	13A	10A		15A	5A	5A		10A	2A	5A	3A	20A			3A		106 A
Wildlife Hab: Other		13A	30A	14A		10A	10A	40A	65A	7A	52A		20A	20A	10A	3A		294 A
608 - Slash Piles		13A	30A	14A		10A	10A	40A	65A	7A	52A		20A	20A	10A			
609 - Snags		13A	30A	14A				40A	65A	7A	52A					3A		

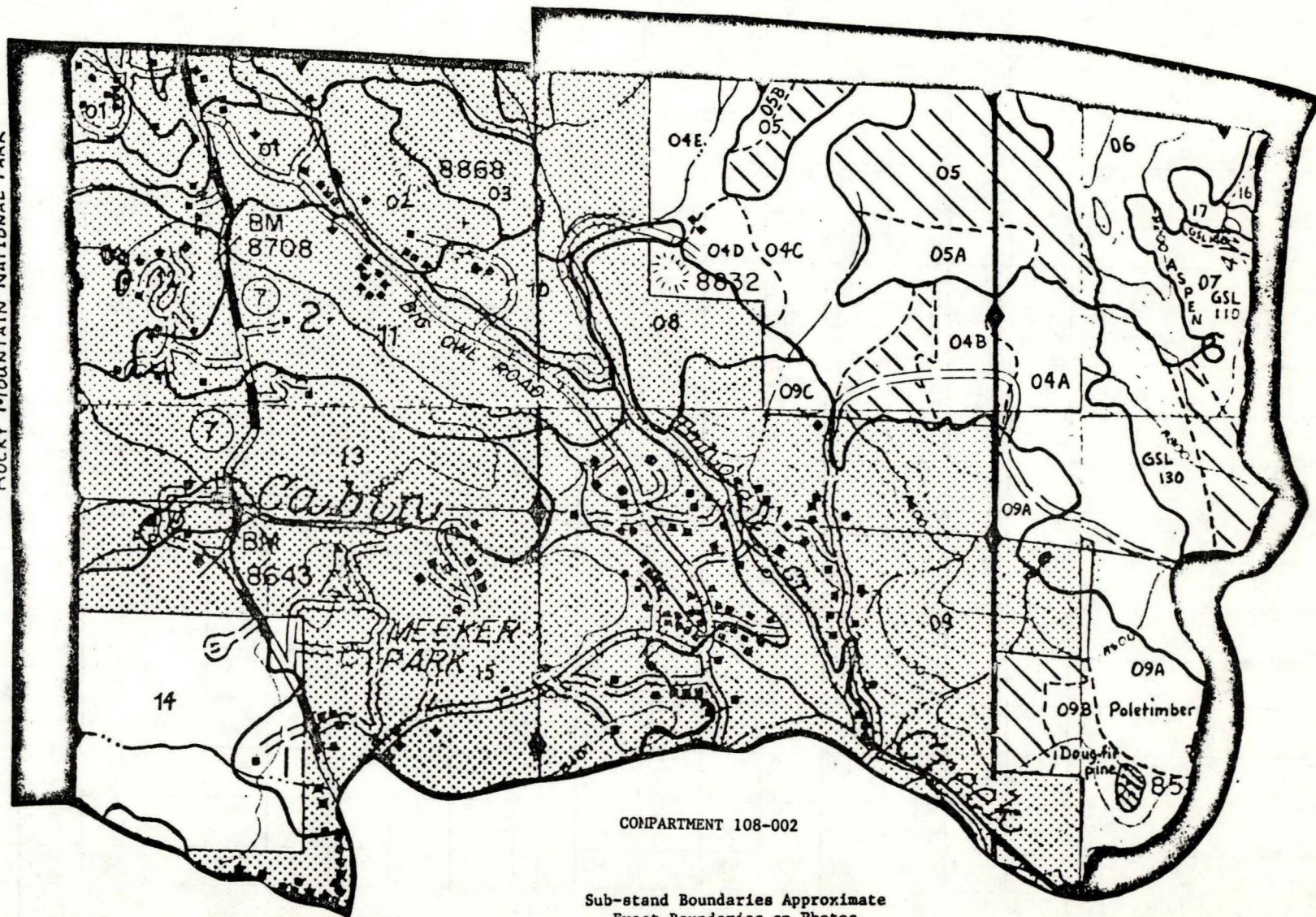
0-41



Rocky Mountain National Park

LEGEND

-  PROJECT BOUNDARY
-  STAND BOUNDARY
-  SUB-STAND BOUNDARY
-  04 STAND NUMBER
-  NO TREATMENT AREAS



COMPARTMENT 108-002

Sub-stand Boundaries Approximate
Exact Boundaries on Photos

APPENDIX EXHIBIT 5

Samples of Public Involvement Mailings

The following are samples of the type of letter used for public involvement in the Front Range Vegetative Management Pilot Project. Additional mailings were sent including an initial contact letter sent to all area landowners.



Colorado State Forest
Service

U.S. Forest Service

Boulder County Parks
& Open Space

City of Boulder

Bureau of Land
Management

April 5, 1978

Dear Landowner;

In order to avoid a massive flight of mountain pine beetles to new trees this summer, the Colorado State Forest Service, through the Front Range Vegetative Management Pilot Project, is turning its full attention for the next few months to the cutting and treating of currently infested trees.

To aid in this all-out effort, we request that by May 10 you identify and drop the currently infested trees on your property, and limb and stack the wood in preparation for chemical treatment by the State Forest Service.

Limbed trees should be cut into four-foot lengths and stacks should be 4'x4' and up to 80' long. Stacks should be made in an open, sunny area, well away from standing trees and on soil where a trench may be dug completely around the stack.

By doing this preparation yourself, you can significantly reduce the cost of having the State Forest Service treat the wood. The maximum cost, if you cut and stack the wood yourself, will be \$14 a cord. It may be less than that in some cases.

If you are interested in having cut and stacked wood on your property treated by the Colorado State Forest Service, contact the unit forester in your area: Nederland, John Moulton - 258-7591; Magnolia, Zdenek Bauer - 258-7553; Flagstaff, Mike Hostetler - 444-1069; Sugarloaf, Craig Paddock - 442-5480.

We hope you will be able to participate in this effort to control the mountain pine beetle.

Sincerely,

Pamela Patrick
Public Information Officer



Colorado State Forest
Service

U.S. Forest Service

Boulder County Parks
& Open Space

City of Boulder

Bureau of Land
Management

October 18, 1978

Dear Landowner,

We are off and running on a new year of forest management in the Sugarloaf unit, and all of us on Front Range Project crews are excited at the prospect of carrying on the progress that was made last year.

As you may already know, about 24,000 mountain pine beetle trees were cut and treated in this unit alone last year. In addition, a few hundred acres were thinned and underwent fuels reduction and wildlife habitat improvement. Not all of that work can be credited to Front Range Project crews alone. Many of you worked hard to manage your forests and control the mountain pine beetle epidemic -- just as you have been doing for years.

As the new Unit Forester for Sugarloaf, I want to thank you all for your diligence before the Project began and since its inception. I plan to keep the lines of communication wide open, and look forward to working cooperatively with you to keep Sugarloaf forests healthy. Please come by the trailer and chat or give me a call at 442-5480 -- I'm hoping to meet as many of you as possible.

I've enclosed a card on which you can give your permission to have our crews mark currently infested mountain pine beetle trees on your land. You probably have been contacted in the past but we would like to update our information prior to marking. Please return the card as soon as possible to the address on the back or simply put it in our mailbox across from the trailer.

I have a crew of 12 now, and plan to hire 2-3 more cutters and 4-5 more slashers. We now feel we have a handle on the mountain pine beetle problem and we will continue to mark, cut and treat beetle trees, but our primary effort will be directed toward changing the forest conditions that support a mountain pine beetle epidemic.

You, as mountain landowners, are acutely aware I'm sure, that we must control forest fires. But by taking away forest fires -- one of nature's most important tools of natural selection -- we have created the overdense forest that supports the mountain pine beetle epidemic.

Through forest management we can duplicate in part the natural thinning and harvesting of trees usually accomplished by nature. At the same time, this thinning reduces the likelihood of a dangerous wildfire occurring that could result in loss of life and property.

I'd like to work closely with you on developing a forest management plan for your land, and hope to be contacting you soon.

Sincerely,

Paul Summerfelt
Sugarloaf Unit Forester

E-3

APPENDIX EXHIBIT 6

CFRP-1 Landowner Agreement

**FRONT RANGE PROJECT VEGETATION MANAGEMENT PLAN
AND SERVICE AGREEMENT FOR LANDOWNERS**

CSFS FRP-1

LANDOWNER:

Name: _____
Address: _____
City: _____
Phone Number: _____
Total Acres Owned: _____

Scale _____ in. = 1 mile
Twp: _____
Range: _____
Section: _____
1/4 Sec: _____

Unit _____ Compartment _____ Stand No. _____ Stand Acres _____ Mgmt. Type _____

PRESENT FOREST CONDITION:

Ave. Stems/acre _____ Ave. BA/acre _____ Ave DBH _____ in. 10yr. radial _____ in.
Stand age _____ yrs. Ave. Ht. _____ ft. Site Index _____ Reproduction _____ stems/acre
No. MPB infested trees _____ No. Dead Standing trees/A _____ Vol./Acre _____ MBF
D.M. Rating _____ SBW _____ Needle Miner _____ Porcupine _____
Large Fuel Accumulation: Light _____ Medium _____ Heavy _____
Land use - owners objectives - _____

PRESCRIPTION -

<u>TREATMENT</u>	<u>ACRES TREATED</u>	<u>ACTUAL CSFS COST</u>	<u>OWNERS COST</u>
1. Thin to _____ GSL	_____	_____	_____
a. Ave. BA/acre _____			
b. Spacing _____ ft. x _____ ft.			
2. Treat _____ MPB trees	_____	_____	_____
3. Slash treatment			
a. lop and scatter	_____	_____	_____
b. pile and burn	_____	_____	_____
c. chip	_____	_____	_____
4. Harvest			
a. salvage vol. per acre _____.			
b. selection vol. per acre _____.			
5. Planting and Erosion Control			
a. tree planting	_____	_____	_____
b. plant _____ species	_____	_____	_____
c. site preparation	_____	_____	_____
6. Pruning	_____	_____	_____
7. Other treatment needs			
DESCRIBE	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

TOTAL

Estimate of products generated

_____ board feet of S.T.

_____ cords of firewood

_____ cubic feet of round wood

_____ cubic feet of wood chips

AGREEMENT

I _____ owner of the above described property agree to allow Front Range Project crews to enter my premises for the sole purpose of completing the above prescribed work. This work is to be done before _____ (date). After certification of completion by the unit forester in concurrence with me, I agree to reimburse the Front Range Project at the rate of ____/____ for _____ for a total payment of \$_____ for the work performed. The sole remedy of the landowner in the event C.S.F.S. is unable to complete the specified work for any reason shall be release of obligation to pay the above agreed upon charge. I _____ (Owner) agree that I shall not be entitled to any other remedy.

Landowner

C.S.F.S. Forester

CERTIFICATION OF COMPLETION OF WORK

I _____ landowner of the above described property and _____ unit forester certify that the above work has been satisfactorily completed to prescribed standards. The landowner agrees to pay \$_____ upon receipt of invoice.

Landowner

Unit Forester

PAYMENT RECORD

Paid by _____ on _____

Account closed _____

Transaction # _____

Sign - Accounting Officer

APPENDIX EXHIBIT 7

Front Range Vegetative Management Pilot Project: Final Report

Front Range Vegetative Management Pilot Project: Final Report

The following summary was developed for general public and agency distribution to illustrate the results of the project. The "We Commitment" report is aimed at providing more specific process, organization and management information about the pilot project.



FRONT RANGE VEGETATIVE MANAGEMENT PILOT PROJECT

Final Report





Front Range Vegetative Management Pilot Project

FINAL REPORT

October 1, 1977 — September 30, 1979

*Report prepared by Nan Brownell Pirnack
NewsSystems
Boulder, Colorado*



An example of a well-managed stand of young ponderosa pine thinned during the project. Grasses, shrubs and vigorous cone-producing trees will increase availability of wildlife food.

About the cover:

Top photo shows result of a devastating MPB attack west of Sugarloaf Mountain. Two years later (bottom photo), the brown, beetle-killed pines were removed and stands thinned. Managed stands mean a healthier forest for the future.

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• Future	21
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Some areas were more badly damaged than others in the Front Range Project area. This home sits atop a stand of ponderosa pine visited by the MPB.

The Front Range Project story:

New life for a dying forest

New life for a dying forest along the Front Range of Colorado resulted from concentrated efforts by five government agencies. The Forest Service (USDA), Colorado State Forest Service, County of Boulder, City of Boulder and Bureau of Land Management (USDI) joined together in a unique cooperative undertaking under the title Front Range Vegetative Management Pilot Project (Front Range Project). After two years and thousands of hours of labor, the Front Range Project forest was revitalized with hope for a bright future.

Foresters had been concerned for some time with the urgent need for forest management in the area. The forest was unhealthy, a condition marked by stands of dying trees. The sickly forest quickly fell victim to the mountain pine beetle (MPB) which attacked weakened ponderosa pine trees, painting the forest an unsightly brown from dying trees the beetle left behind.

Results of the MPB onslaught awakened area landowners to the situation's urgency. Landowners' pleas to legislators for funds to fight the MPB were joined by requests from foresters for monies for overall management.

The Colorado State Forest Service (CSFS) proposed a forest management concept for private landowners about the same time the USFS proposed a project for federal lands. With need also apparent on city and county parklands and BLM property, a joint meeting of concerned agencies and landowners was held in Boulder in 1977. Obvious benefits of a cooperative approach to the MPB crisis plus need for long-range management practices gave birth to the innovative concept behind the Front Range Project.

According to one participant in the joint venture, the cooperative approach meant cutting through a lot of red tape to expedite on-the-ground accomplishments.



City, County, State, and Federal officials toured the Front Range Project area to observe the results of the unique cooperative effort.



Figure 1. Five government agencies joined in a cooperative effort in the Front Range Project.

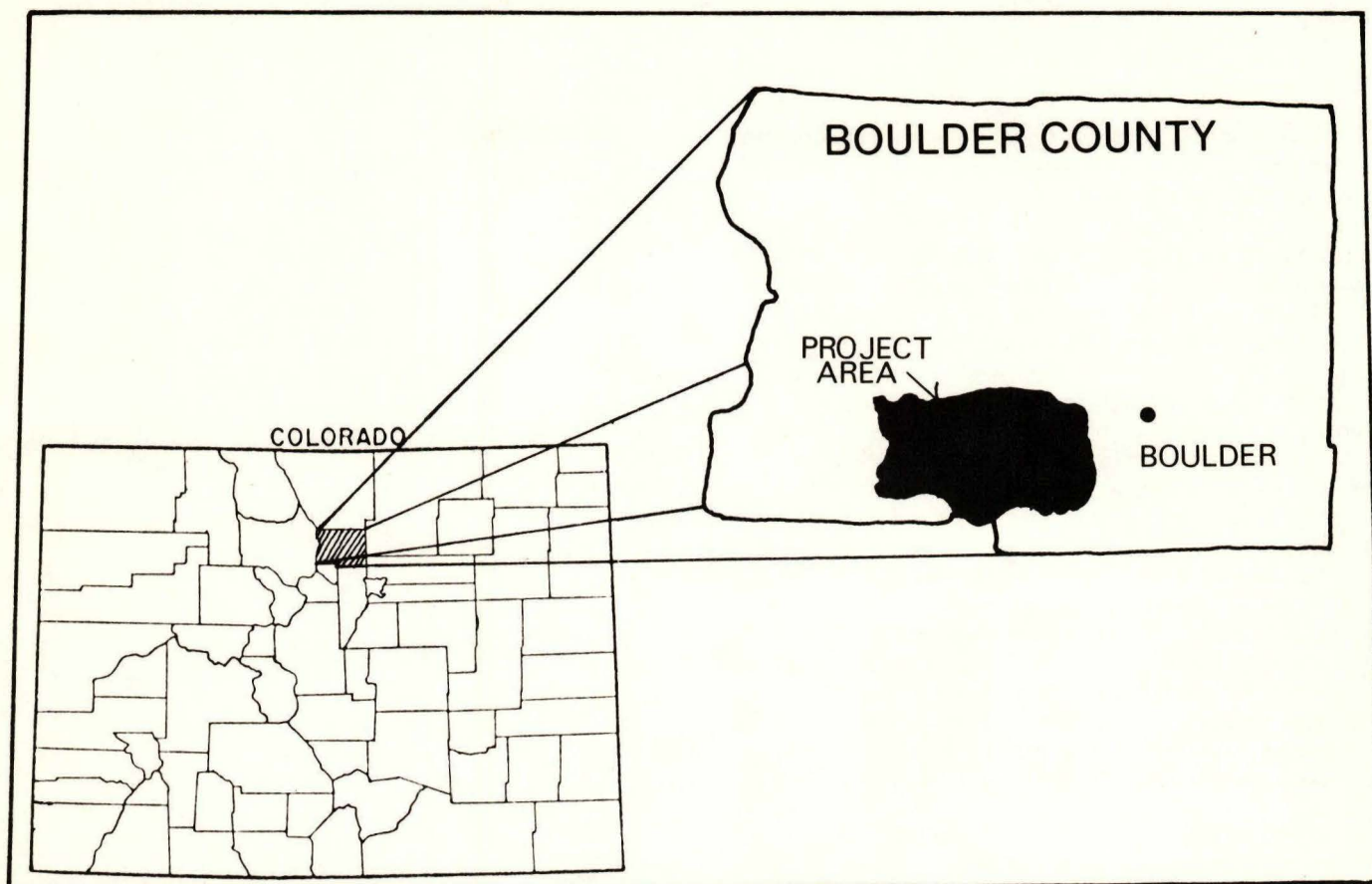


Figure 2. Front Range Project location map.

Another official stated the eventual success of the project was only possible because of cooperation between agencies.

The project began officially October 1, 1977 on 34,500 acres within 50 square miles of Boulder County; a one-year extension was granted through September 30, 1979.

Emphasis on forest management efforts in the pilot project area was:

- Insect control and prevention
- Wildlife habitat improvement
- Fire hazard reduction
- Timber stand improvement
- Improvement of scenic beauty
- Forest regeneration
- Watershed improvement
- Landowner and agency cooperation

Benefits derived from the cooperative venture included not only an abundance of firewood for commercial and private use, but many new industries and hundreds of jobs (some encompassing on-the-job training for future employment skills).

Homeowners in the project area rallied to the MPB fight and formed their own crews to treat infested trees on their own and neighboring land. Many worked alongside crews to control beetles before they could fly again.

Federal, state, local, and private funds were used in the Front Range Project. Public funds were granted by legislators with a vision that a healthy Front Range forest offers many economic benefits to Colorado citizens.

HISTORY — How did the Front Range forests get to this sad state — was it natural decay or was there misuse and neglect by man?

Knowledgeable fingers point to man as the culprit. Miners and other settlers in the mid 1800s looked to nearby forests for wood . . . wood to shore up mines, build plank roads, create homes and shops, and for railroad ties. Trees they cut were the tall ones, the strong ones, the best. Left behind were the weak, the deformed, the poor stock to reproduce in dense stands.

It was a classic case of reverse natural selection practiced by early settlers who high-graded area forests and thus contributed to today's even-aged, unhealthy forests.

As the Front Range became more densely settled, forest fires were quickly brought under control so that the natural process which would have resulted in uneven-aged stands, forest diversity, and change was eliminated. The forest became too weak to resist parasites, diseases, and MPB — all a natural part of the forest ecosystem. However, in a healthy forest only weakened trees succumb in a natural selection process.

Along the Front Range, effect of the MPB onslaught



If you look closely you can spot four trains chugging along the Switzerland Trail heading out of Sunset west of Boulder. Wood for railroad ties and for mines dotting the hills came from these sparse forests.

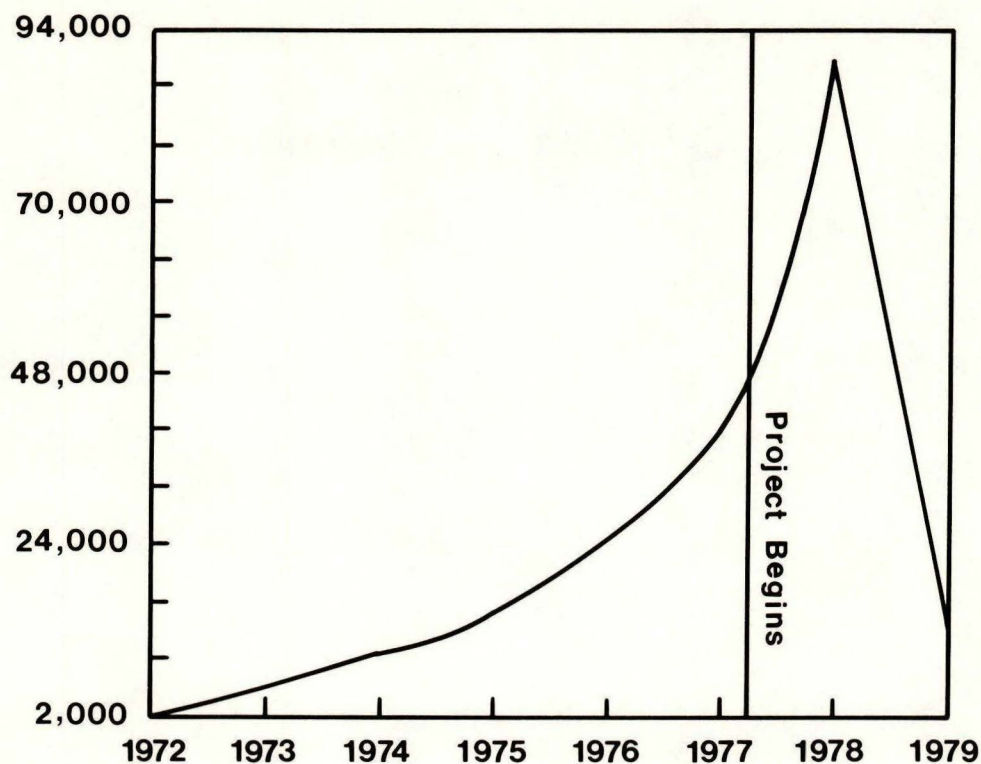


Figure 3. Number of MPB infested trees in Front Range Project. (Number of trees from 1972-77 were estimated from control areas within Front Range Project.)

was a disaster — the beetle killed an estimated 2 million trees by 1975. Piecemeal efforts to control the beetle had been mostly ineffective due to the scope of the problem.

Dwarf mistletoe and western spruce budworm also ran rampant, compounding conditions created by the pine beetle epidemic.

During 1977-78, the first year of the Front Range Project, more than 73,000 beetle-infested trees were cut and treated by landowners and crews in an intensive effort to stop the brown plague. Imagine the satisfaction to those involved in the battle when only 12,500 infested trees were found in the project area the next year. And 10,500 of those trees were subsequently treated.

Infested trees were removed for commercial processing or treated with ethylene dibromide (EDB) or lindane. A refined process for treatment eventually saw crews covering stacks of infested wood with plastic. The plastic was then slit so that pesticide could be sprayed with a minimum of danger to the crew. Slits were finally sealed with tape.

Green hillsides now, compared to thousands of beetle trees two years ago, attest to the success of pine beetle control in the pilot project area (see cover).



Three stages of MPB.

What's a MPB?

The mountain pine beetle (MPB) is a black insect about the length of a match head. The nasty critters bore through bark on live pines, thus making channels between bark and wood. Eggs are laid during this process. Eggs hatch into soft-bodied grubs who are hungry! Grubs burrow horizontally and actually girdle the tree. As if this isn't enough, beetles bring spores of bluestain fungus into the tree, causing clogging of the tree's water conducting system. The tree weakens and rapidly dies of thirst.

MPB has a one-year life cycle covering four developmental stages. Eggs hatch in the fall and the insect spends winter as larvae. Pupae in early summer, they turn into adults and leave infested trees to attack new ones during August.

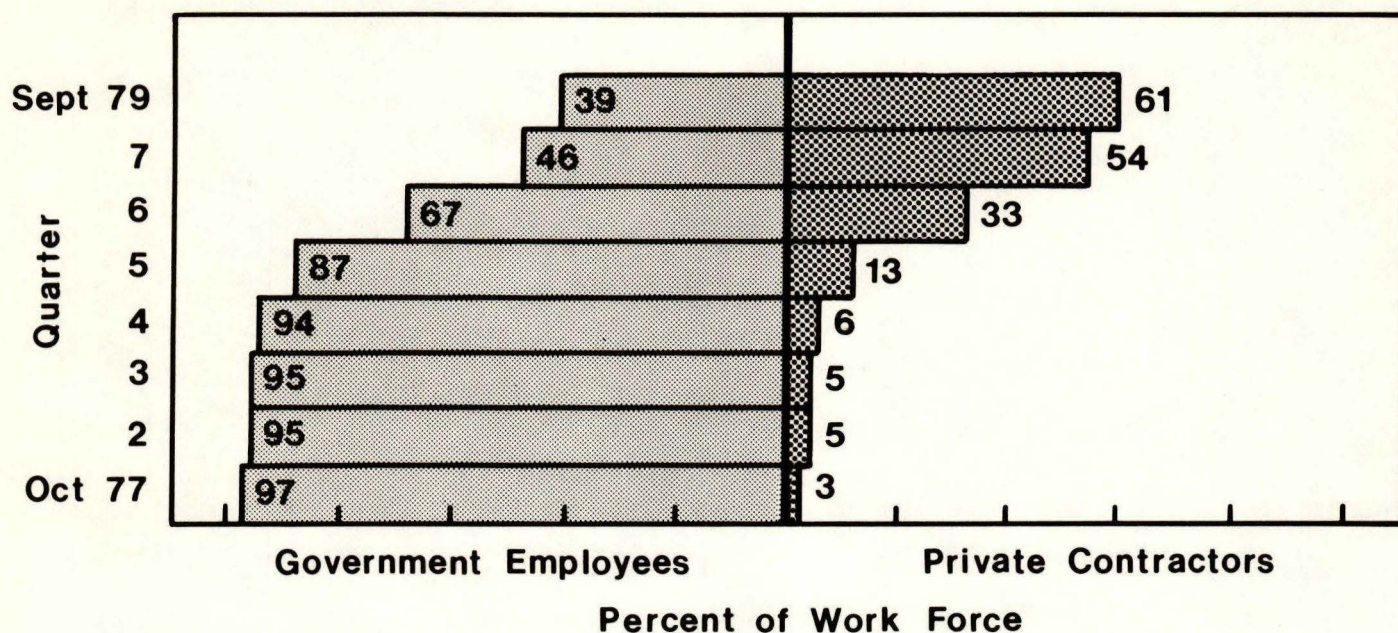


Figure 4. Front Range Project work force trends.

CREWS — The mini-dragon was slain through cooperative efforts of many under the overall direction of agency foresters.

Crew members were of varied backgrounds and interests with many simply wanting to work out-of-doors and learn forestry skills. Men and women crew members worked side by side marking infested trees, cutting them, and piling slash. Homeowners rallied to protect their property.

Unexpected aid came from a diversity of groups including Colorado's Outward Bound Inmate Work Program from Canon City, Boulder County Juvenile Corrections Program, a class in log cabin construction from the Boulder Community Free School, and Boy Scouts.

The Forest Service (USDA) had crews from the Young Adult Conservation Corps (YACC). Boulder County, CSFS, and the federal Forest Service also employed youth from the Comprehensive Employment and Training Act (CETA).

Independent contractors did much of the work as well. Foresters held "show-me's" where contractors could look at work to be done and then submit bids.



In some areas, crews piled slash to break up fuel continuity. Fuelwood quality timber as shown in this photo was removed either by commercial operators or through managed public firewood gathering.



Timber Stand Improvement (TSI) removes ailing trees and leaves a forest reborn and growing. Sunlight has a chance to reach green shoots (after photo below).

TSI — During concentrated efforts to halt the MPB onslaught, attention was also paid to timber stand improvement (TSI).

Thick stands of pine and aspen were thinned to permit availability of soil nutrients, sunlight and water to remaining healthier trees. The result is a forest more able to withstand attacks by pests and parasites.

Once damaged trees were removed and dense stands thinned, landowners and foresters joined forces to plant thousands of fir and spruce trees. At least 15,000 seedlings were planted on private and City of Boulder lands. Over 1500 private landowners completed forest management practices.

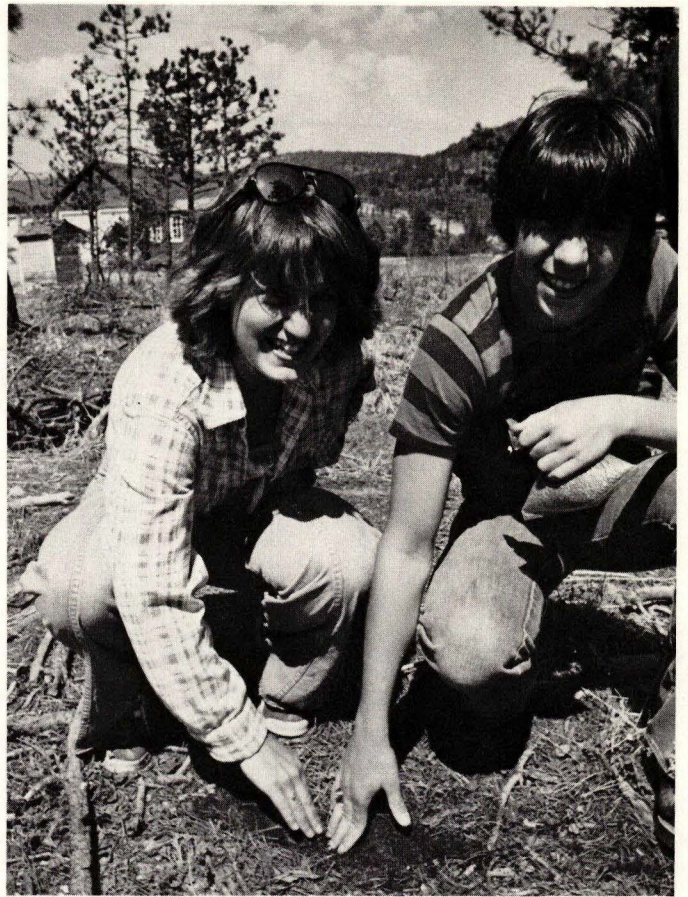
The USFS planted nearly 11,000 ponderosa pine seedlings in two areas of national forest in Boulder County.

A local Boy Scout troop reseeded nearly 15 acres at the old townsite of Sugarloaf as part of an Eagle Scout project. Nine willing helpers planted 31,000 ponderosa pine seeds in beetle-damaged areas.

The number of Tree Farms in Boulder County rose from four to 11 during the Front Range Project. In Colorado, state-employed foresters act as Tree Farm inspectors under the auspices of the American Forest Institute. This organization gives recognition to private landowners who use their land to produce forest products under sustained yield forest management.

Such management involves thinning, harvesting, and planting for forest improvement. This is accomplished under guidance of a prepared plan.

The American Forest Institute, sponsored by the forest industry, recognizes that in the future, private landowners will have to contribute a large percentage of the country's timber needs.



Scouts, landowners, contractors, and foresters joined forces to plant trees and shrubs for reforestation and wildlife habitat improvement.



Brush piles were carefully constructed throughout the Project area for small mammal protection.

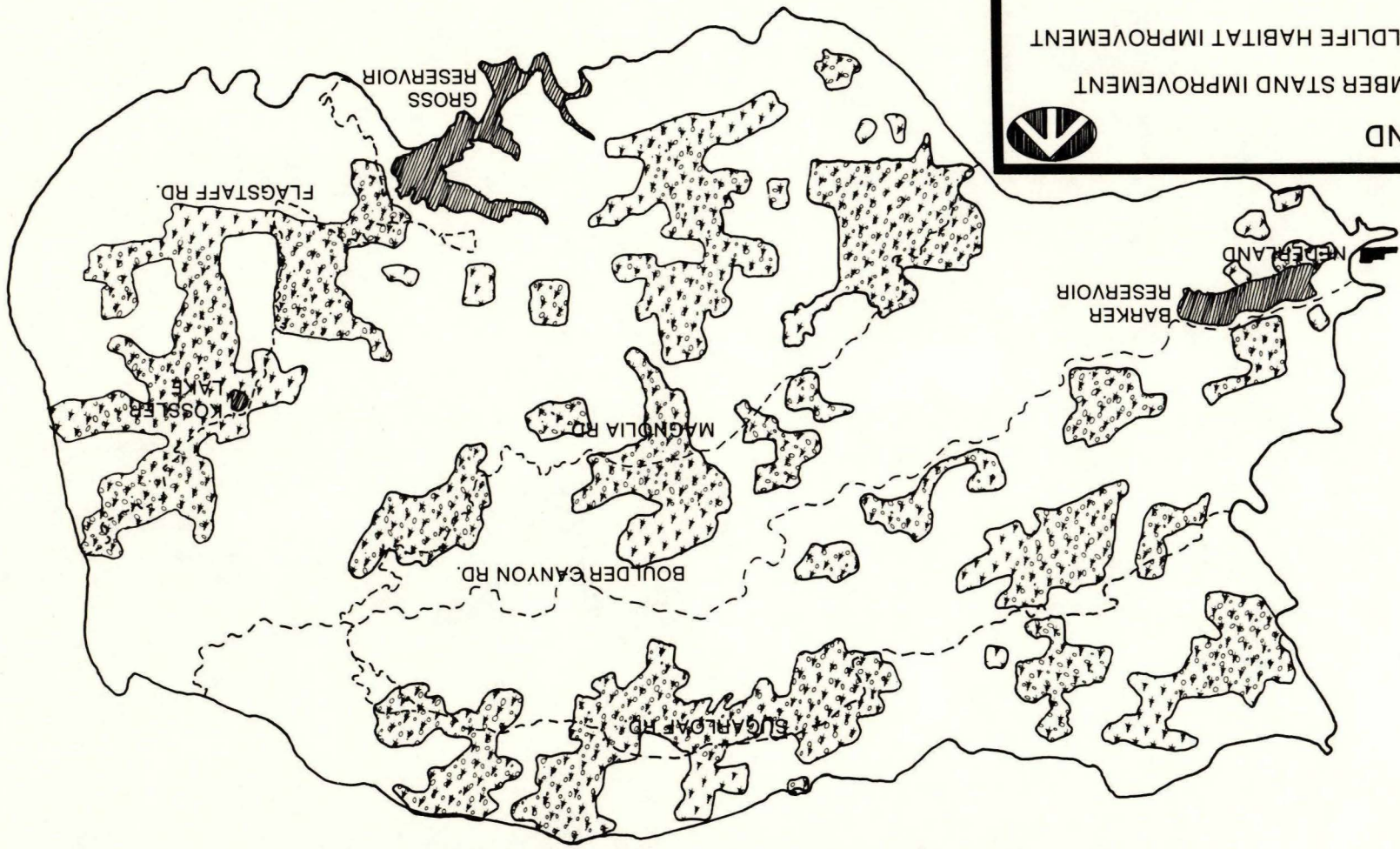
WILDLIFE — Forest conditions directly affect wildlife. Forest management within the Front Range Project means much improved habitat for deer, elk, grouse, turkey, bear, and a number of birds.

A prescription was written to benefit roaming elk herds in the Nederland area. Aspen and competing conifers were patch cut by YACC to stimulate food production for grazing elk. Aspen slash was left as browse. A multitude of nest or roost trees and wildlife piles were left as refuge for smaller animals.




In another special wildlife project, YACC members planted chokecherry and serviceberry seedlings. Buds and twigs of these species are preferred browse for elk and deer while berries are consumed by grouse, turkey, and bear.

Special wildlife trees were protected throughout the project to insure needed wildlife havens.

FRONT RANGE PILOT PROJECT



LEGEND

 WILDLIFE HABITAT IMPROVEMENT
 TIMBER STAND IMPROVEMENT


*NO SCALE

Figure 5. Wildlife habitat and timber stand improvement in the Project area.



Landowners, once convinced of the importance of the work, were happy to join in practicing forestry on their own and neighbors' property.

LANDOWNER PARTICIPATION — Alarm over brown, dying forests initially prompted area landowners to seek aid from county, state, and federal foresters. This was followed by questions concerning forest management practices.

Why was it necessary to cut living trees in thinning practices?

Why couldn't the beetle-infested wood be hauled away without treatment?

Initially, some residents questioned or complained about a variety of new things happening in the woods.

Front Range Project agencies mounted a public information campaign via meetings, newsletters, and personal contacts to answer questions and alleviate concerns. Attention given to public information at the beginning of the Project paid off . . . complaints soon slowed to a trickle.

Through education by foresters, 1555 private landowners completed forest management practices including thinning of living trees. A new appreciation of the esthetic quality of a managed forest near one's home was matched by a growing woodpile for use during the energy crisis. Realization that a managed forest lessened fire hazards was also met with enthusiasm.

Foresters had originally hoped the budget would allow for disposal of slash left from forest management practices. This would help ease

FUEL REDUCTION — Wildfires feed on grass, trees and underbrush. Forest management practices in the Front Range Project mean that chances of a crown fire are significantly reduced. The removal of dead, tinderdry trees by logging, fuelwood sales, and public firewood gathering has made the forest west of Boulder safer to live near . . . and in.

In addition to treating dead and living fuels, a more sophisticated fire alert system is now present in Boulder County. A fire weather station at the City of Boulder water treatment plant gathers data for the nationwide AFFIRMS system used by all federal agencies and 35 state agencies. Daily broadcasts notify officials and citizens of current fire danger.

The expanded set-up was prompted by the Front Range Project. The station was equipped by the USFS, participants were trained by the CSFS, and a city employee collects data and transmits it to the Boulder County computer terminal.



Huge piles of slash disappear in a flash, crushed by the roller chopper.

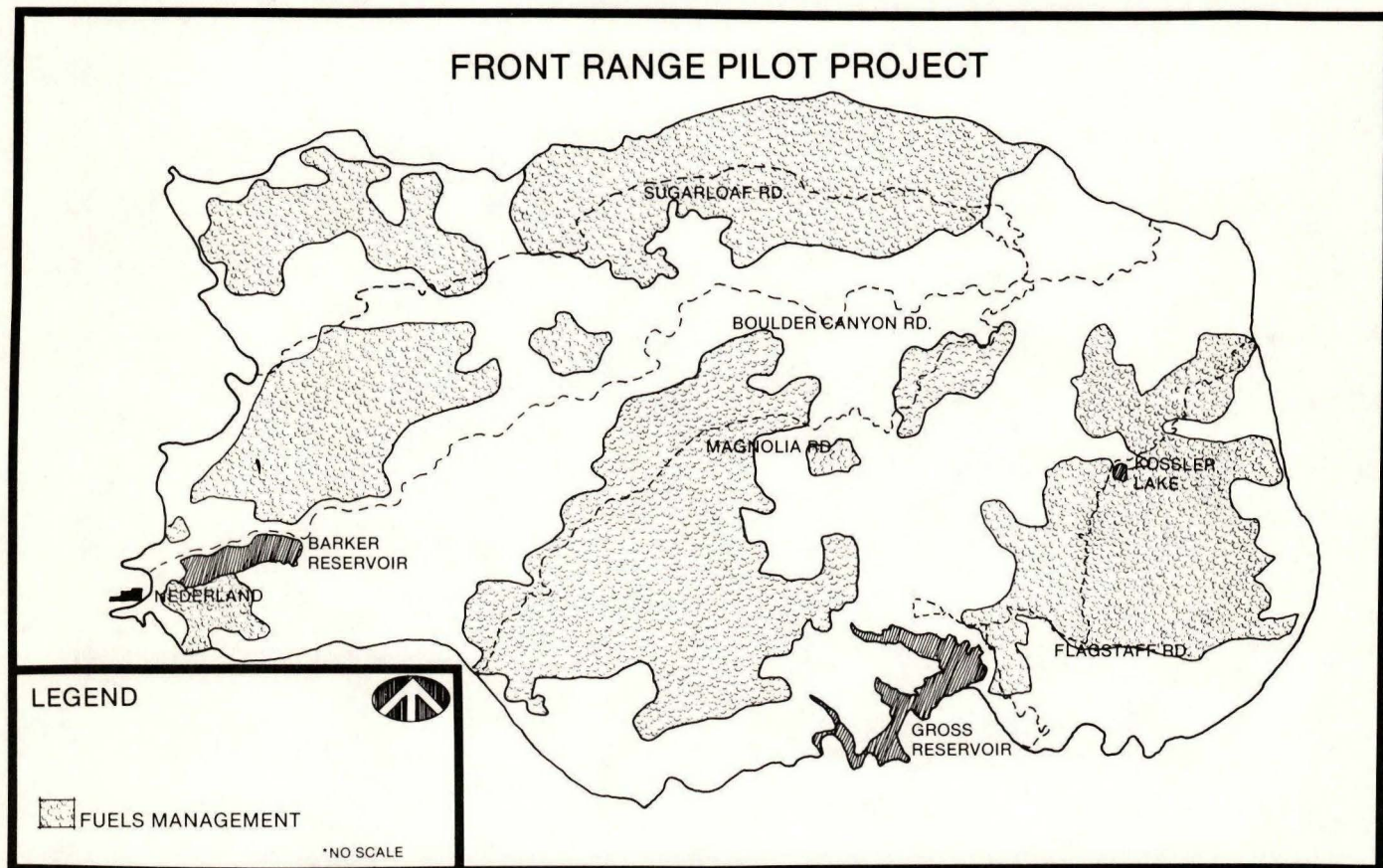


Figure 7. Fuels management.



Firewood is collected by these youths as one benefit to homeowners in the Front Range Project area.

PROJECT BENEFITS — Benefits of the Front Range Project include higher woodpiles from beetle control and thinning on private and public lands. A quantity of timber was also available to be worked by private contractors. Logging trucks and pickups brought the rich harvest to area sawmills where lumber for area building became more readily available and often at a lower price.

The beetle left behind another benefit — beautiful blue-stained pine which soon decorated area homes.

By-products from area sawmills included sawdust for use in nearby stables, firewood from slabs left from the milling process, and shavings from the planing mill.

Woodcutters, loggers, skidders, carpenters, contractors, mill workers, and truckers, all benefited from the resurging lumber industry in Boulder County.

Local unemployment was reduced. During 1978-79 nearly 200 forestry jobs were created for CETA employees.

At the Project's beginning, there were only two active forestry contractors in Boulder County; at the end, there were over 20.

Money was returned to Boulder County's general fund through forest management work. The amount earned through timber sales, contracting on private land, public firewood cutting, and wholesale firewood sales exceeded the amount allocated for forestry operations.



Commercial loggers use more sophisticated techniques in harvesting timber from the Front Range Project area.



In 1977, City of Boulder's Cathedral Park area consisted mainly of dense tree stands (upper photo). Two years and a forest management project later, there's plenty of room for the public to enjoy recreation on this reclaimed forest land.



Beetle killed timber from the Front Range Project was used for the new main entrance gate to Walker Ranch, a Boulder County open space property.

SCENIC QUALITY — An objective of the Front Range Project was improvement of esthetic qualities on public and private lands along the Front Range. This area of Colorado takes pride in its beautiful surroundings. City and county parks in the nearby mountains offer opportunities for all to get closer to this beauty.

The City of Boulder concentrated forest management efforts in Cathedral Park. New vistas await picnickers and hikers. Where once dense stands of trees stood, there are now scenic vistas of high mountain peaks. Improved wildlife habitat means more animals to enjoy.

Farther up Flagstaff Mountain west of Boulder is the Walker Ranch, part of the open space land for Boulder County. A heavily-used recreation area since its opening in 1978, Walker Ranch hosts hikers, fishermen, horseback riders, hang gliders, rock climbers, picnickers . . . all of whom will enjoy the result of forest management work.

An improved watershed is an off-shoot of a cooperative forest management effort between the CSFS and Denver Water Board. Over 36 acres surrounding Gross Reservoir were selectively thinned after a particularly damaging MPB attack. The Denver Water Board had fought back for several years, but were relieved to hand the battle over to the Front Range Project.

Again, the result of forest management practices means a more attractive recreation area for picnickers and hikers to that high country body of water. It's so much easier to watch the sun set over the water now that dense stands have been thinned. Care was also taken to enhance wildlife habitat in the area.



Hikers in Cathedral Park will enjoy reopened views of far mountain peaks

What happens next?

WHAT NOW — Now that the official end of the Front Range Project has been announced, what happens next?

Work in the area is not finished . . . it has only just begun.

The MPB population is significantly reduced. Any new MPB infested trees can be handled routinely by agencies and landowners without much difficulty. There will be some inflight, but fundamentally beetles in the Front Range Project have been beaten.

But this is only one part of forest management. Stands thinned under the Front Range Project should be reentered in 10 to 15 years for commercial thinning to maintain a many-aged forest. If foresters are permitted to mark trees to be cut, a healthier forest will result.

One of the greater benefits of the project is that cooperative programs in forestry can intensively manage more acres in mixed ownership than can otherwise be done. In the Front Range Project each agency lent expertise in the cooperative venture . . . one agency would not have had manpower or funds to do the job alone.

What once were brown hillsides are now green. The wildflower display in the spring of 1979 hadn't been seen for years in the area . . . attributable to abundant moisture and sunlight which reached the ground after thinning. Already more shrubs are growing in the Front Range Project area and more Colorado gold will be available as aspen regeneration practices begin to pay off.

Boulder County will see a continuing cooperative venture in the Allenspark area. Here, the MPB has left its toll and there is a severe need for management of both private and public lands. The St. Vrain-Left Hand area will see efforts over the next five years as well.

It's a hopeful beginning . . . but there's a lot more work to be done in the dynamic Front Range forest of Colorado.



Aspen regeneration is aided by patch cutting as demonstrated in this before and after example. Deer and elk will also benefit from new feeding areas.

COLORADO FRONT RANGE VEGETATIVE MANAGEMENT PILOT PROJECT

FINANCIAL SUMMARY 10/1/77 — 9/30/79

ACTIVITY	ACCOMPLISHMENT	DOLLARS
YACC		\$ 810,000
CETA		882,000
THINNING	9039A	755,787
WILDLIFE HABITAT IMPROVEMENT	8013A	115,684
DIRECT MPB CONTROL	83,638T	*841,346
REFORESTATION	745A	80,650
FUELS MANAGEMENT	14,520A	*862,855
NOXIOUS WEED CONTROL	29A	2,900
RECREATION	4738A	21,198
FIRE PROTECTION		*77,600
ADMINISTRATION/PLANNING/FOREST SURVEY		395,600
TOTAL		\$4,845,620

***DOES NOT INCLUDE PRIVATE COOPERATIVE QUALIFYING EXPENDITURE.**



These before and after photos (identical photo point) show results of fuel treatment to reduce wildlife hazard as part of the overall forest management effort.

APPENDIX EXHIBIT 8

Boulder County Parks and Open Space Perspective

The following discussion outlines the Boulder County Parks and Open Space perspective of the Front Range Vegetative Management Pilot Project from 1977 to 1979.

Background

The need for vegetative management was recognized by the Parks and Open Space Department as it was recognized by the U.S. Forest Service, Colorado State Forest Service, City of Boulder and private landowners of Boulder County. In the fall of 1977, Boulder County acquired 2,600 acres of additional mountain property. This brought the total mountain acreage to 3,600 acres--3,500 of which were within the boundaries of the Front Range Vegetative Management Pilot Project.

The Parks and Open Space Department, Forestry Division, has additional interests other than County property--that of private forested land management. The Forestry Division's primary directive is to assist small-acreage forest landowners in accomplishing forest management. Therefore, this pilot project appeared, in its conception, to be an excellent means of accomplishing the objectives of the Forestry Division of the Parks and Open Space Department for County and private land management.

Objectives

The Forestry Division's objectives in cooperating in this project were to: 1) complete management on as much of the County properties as possible during the project time frame; 2) promote the goals and operation of the Parks and Open Space to the general public, other resource agencies, and the Boulder County Board of Commissioners; 3) maximize assistance to all agencies involved in the Front Range Vegetative Management Pilot Project in accomplishing the goals of the project (this includes private landowner assistance).

Operations:

Although not funded directly through the Front Range Vegetative Management Pilot Project, the Forestry Division did acquire additional funds, probably as a result of being a cooperator in the project. The primary sources of funds and labor for the project and other Forestry Division programs came from County and the CETA Public Service Employment Program. We also utilized labor from the Boulder County Community Corrections program, the Colorado Outward Bound Buena Vista Reformatory Program, the general public, local service groups and private timber contractors.

The emphasis of our program in 1977 was to reduce the wildfire hazards and control the mountain pine beetle infestation on the 3,500 acres of County property within the Front Range Vegetative Management Pilot Project. Upon completion of the mountain pine beetle treatment and management work on several key areas of County property, we offered our assistance that summer and fall, to the Front Range Vegetative Management Pilot Project coordinator to work on any areas within the project that were in need of quick completion. At that time, the Forestry Division contracted with the Colorado State Forest Service to complete 60 acres in the City of Boulder Mountain Parks. We also contracted with the State Forest Service to prepare 1,200 trees on National Forest land for treatment. This somewhat exemplifies the extent of cooperative efforts.

In 1978, the emphasis of our work was placed on management of County properties and providing "on-the-ground" management assistance to homeowners in the mountain subdivisions.

Accomplishments

The benefits or accomplishments that the Forestry Division of Parks and Open Space derived from our involvement in this cooperative effort are:

1. The Department received a tremendous amount of positive exposure to the general public, other resource agencies and our own County government. This, I feel, has led to the expansion of the Forestry Division. In 1977, our budget was \$37,000. In 1980, our budget was \$133,000. With this increased budget, the Forestry Division has grown from three permanent employees to six permanent employees.
2. The project provided us with technical and "on the ground" assistance. This enabled us to reduce the mountain pine beetle infestations on County property by 90 percent in that two year period. It also enabled us to manage all "critical" areas of County mountain property.
3. In 1977, the Forestry Division generated \$17,500 which was \$1,500 more than our operational budget for that year.
4. The concentrated activities of the Front Range Vegetative Management Pilot Project served as a springboard to improve and upgrade the professional and field skills of all Forestry Division employees.
5. The Project brought our agency in as a valuable entity. The Forestry Division responded with a maximum of cooperative effort. The result has been the establishment of an excellent working relationship with the Colorado State Forest Service and the United States Forest Service. This relationship has and will continue to prove valuable in our future programs.

APPENDIX EXHIBIT 9

Colorado State Forest Service Field Operations Forester Perspective

The "We Commitment" - The Key to Success
Colorado State Forest Service
Field Operations Forester Perspective

This is written from the perspective of the forester in charge of carrying out the on-the-ground field activities for the Colorado State Forest Service portion of the Front Range Vegetative Management Pilot Project. We were responsible for completing approximately 75 percent of the work outlined for this project. We were charged with completion of work on not only private ownerships but on USFS land as well. Operating plans were prepared by interagency teams to guide the activities that were carried out.

What made the Front Range Project work? Probably the most important thing was that the USFS trusted us as professionals to carry out work on USFS land in a cooperative spirit. Tight contracts and bureaucratic procedures were waived in favor of working together as fellow professionals. A rigid system of red tape would have doomed this project from the start. We were given overall goals of certain acres of thinning, fuels, wildlife, MPB, etc., and standards for achieving these. The application of treatments however was left largely to the discretion of the field foresters. This removed the bottleneck that could have hampered on-the-ground accomplishment.

Throughout the project, one of my major concerns was finding enough people to do the work we were charged with. In the end, complete overlap of contractors and various agency personnel working together resulted in success. For example, in some areas USFS YACC personnel felled MPB trees. These were in turn prepared for chemical treatment by Boulder County crews and subsequently treated by Colorado State Forest Service crews.

This overlap of work required constant coordination. The volume of overlap made it necessary for coordination to be handled by the field foresters of all agencies. If this had been routed through a central coordinator, work would have been greatly slowed. Therefore, it was imperative that foresters at all levels had the "We" commitment and were working in the cooperative spirit of the project.

Another great benefit of the cooperative effort was that stands could be worked as one regardless of ownership. This made it feasible to work areas that would have been impractical to tackle otherwise. For example, one area of 300 acres was blocked out as a salvage sale removing dead and currently infested material. This area was approximately 50% USFS and 50% private ownership. Twenty-two different private owners were involved with a jig-saw puzzle configuration of land lines. If this area could not have been treated as one, survey expenses alone would have made the job prohibitive.

Other things that resulted from the cooperative effort that contributed to a more efficient project were: (1) office sites for CSFS field offices on USFS land; (2) Boulder County allowing CSFS to buy gas from their road district at bulk prices; (3) support with heavy equipment from Boulder County as needed; (4) USFS loaning CSFS a roller chopper for completion of fuels work; and (5) integrating training sessions for mountain pine beetle, fuels, cacodylic acid treatment, etc. These are just a few examples of the kind of things that occurred.

Success would have been impossible if we hadn't stuck together. We were a united front whenever problems arose. We met landowner groups together to explain our programs, we stood as one in contract disputes, and spoke to the press with one voice. Without this solidarity, we could have been derailed before we got started. Again, this was something that every person, regardless of level in the operation, had to be committed to. There was never any buck passing or blaming the other agency.

A final key ingredient was a willingness to share in both the success and failures of the project. An unselfish attitude on the part of all agency personnel was required. It would have been easy for the USFS to say, for example, "We provided the most funds for this; we should call all the shots;" or for CSFS to say, "We're doing more on-the-ground work; we'll run this like we want." I didn't see this happen. This was yet another aspect of working together and a further testimony that the "we" commitment filtered down to the lowest crewman.

If there was one thing that made this project successful from my viewpoint, it was no one, regardless of level or job, ever forgot that we were in this together. There was constant awareness and concentrated effort in cooperation. Cooperation has to be worked at and refined and can never be taken for granted. Afterall, cooperation requires giving, and in a typical agency taking is a way of life.

Richard E. Selle
Field Operations Forester

APPENDIX EXHIBIT 10
Financial Perspective

FINANCIAL PERSPECTIVE OF THE U.S. FOREST SERVICE

This perspective highlights the financial management aspects of the Front Range Vegetative Management Pilot Project. I feel there are three essential points when dealing with a project of this size and scope.

First and most important is discovering potential sources of funding. Time devoted to researching potential funding, service, or manpower programs available at the federal, state, county, or municipal level is well spent. In-depth knowledge of available programs opens a variety of ways to accomplish the project.

Second, once the available funding is known, it is essential that a preliminary financial management plan be developed. Accordingly, the managers and cooperating agencies must be thoroughly familiar with the available programs so they can develop a coordinated funding request. The funding request must be tailored to the mix of landownership in the project area and the type of management practices to be undertaken.

Third, as you develop the financial plan think, "Comprehensive Management with "Multiple results".

My point is this, I think many of us federal managers have become entrenched in the philosophy and posture of spending money the same way it was appropriated - functionally. Accordingly, we often overlook the many opportunities and multiplied outputs which can result by mixing functional dollars to finance planned resource management. In today's world of increasing public interest, I believe we are more and more being challenged to integrate and maximize our outputs on each management entry. No longer should we or will we be permitted to harvest a stand one year, complete thinning in another, and then favor wildlife with an independent project during the next year.

As professional land managers, we are obliged to develop integrated plans and apply management practices which produce planned results in the least time at the least cost. In so doing, we will seldom make functional or single purpose entries. We must instead apply a mix of dollars to accomplish insect and disease objectives, improvement of wildlife and fish habitat, timber harvest, appropriate access, fuel abatement, stand management, reforestation, and recreation opportunity objectives. In short, proper application of prescribed management practices will ensure a coordinated, efficient management entry and a successful cooperative forest management project.

Gary Hodges
U.S. Forest Service
Fort Collins, Colorado

FINANCIAL PERSPECTIVE OF THE COLORADO STATE FOREST SERVICE

State Administration

The Front Range Pilot Project presented a complex financial situation involving multi-funding sources. Cooperative forestry program grants, federal land contracts, state appropriations, timber sale revenues, and other project-generated revenues all had to come together into a manageable accounting system that satisfied audit requirements. Further, legal requirements had to be satisfied to stay within state spending authority restrictions.

To accomplish this and provide the project manager with an understandable budget took a great deal of cooperation. The U.S. Forest Service Regional Fiscal Office, the Arapaho-Roosevelt administration, Colorado State University managers, and Colorado State Forest Service personnel worked closely to resolve difficulties that arose. It was this open, problem-solving approach that was primarily responsible for success.

Key items that allowed the Front Range Pilot Project accounting system to work were:

1. A Cooperative Agreement between CSU-Colorado State Forest Service and USDA-Forest Service, Region Two. This established the basis for project operation. It also allowed detailed financial arrangements to be added as amendments. This aided smoother project continuation without interruption.
2. Mutually (USFS-CSFS) negotiated fixed price contract amendments were the primary operating document for budgeting and reimbursement.
3. Individual unit operating plans provided work planning guidance and cost estimation data.
4. Separate accounts for each geographical cost-generating unit were created. Project managers used operating plans to schedule work, consistent with contract amendment prices.
5. Private lands were handled by the same principles. The grant process was through USFS-State and Private Forestry, but targets and costs were derived from the same operating plans.

A working capital problem developed as the accounting process was being implemented. Once established, however, cash flow was adequate.

A summary perspective cannot fully depict the many financial issues that had to be resolved. It was the full commitment of those involved that made it work. Problems had to be solved together, and they were.

Jim Hubbard
Colorado State Forest Service
Fort Collins, Colorado

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